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ABSTRACT

A two-year study of "Learning Disabilities Found in Association with French Immersion Programming" indicated that children who encounter difficulty in primary French immersion programs may have a specific learning disability characterized by a maturational lag in the temporal lobe regions of the brain. In addition, it was found that biographical and background variables also identified in the study may be related to success and failure in such programs. This report discusses the first phase of a three-year follow-up investigation whose purpose is to identify a set of variables predictive of success or failure in primary French immersion programs. The subjects of the study were 1,000 four-year-olds in 77 kindergartens. Biographical and background information and teacher ratings were obtained for all. Two hundred children who would be enrolled in French immersion classes were also given the Early Identification Assessment Battery (EIAB). Results indicated describable patterns of differences in terms of family characteristics, preschool experience, parental attitudes and educational goals. The validity of the informal criteria used by teachers to recommend French immersion or the English program will also be assessed in the longitudinal study. The predictive validity of data from the EIAB as well as the personal data and teacher ratings will be assessed against criterion measures of achievement in French and English to be obtained in the Spring of 1978 and 1979. Questionnaires, checklists, statistical data, and a list of test names and abbreviations are appended. (Author/AMH)

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ABSTRACT

Two years of study of "Learning Disabilities Found in Association with French immersion Programming" indicated that children who encounter difficulty in primary French immersion programs may have a specific learning disability characterized by a maturational lag in the temporal lobe regions of the brain. Biographical and background variables that maybe related to success and failure in such programs were also identified in these studies. A three year follow-up investigation was undertaken to identify a set of variables predictive of success or failure in primary French immersion programs. The first phase of the three year study is reported.

Biographical and background information and teacher ratings were obtained for approximately 1000 children in the spring of their English four-year-old kindergarten program. In addition, the Early Identification Assessment Battery which included measures of intelligence, readiness skills, language abilities and problem-solving abilities was administered to 200 of these children who will be enrolled in French immersion five-year-old kindergarten in September of 1977.

The results of this first phase indicated describable patterns of differences for children entering different

kindergarten programs (French immersion vs. the regular English program) and among children entering French immersion. Differences were found in terms of family characteristics (eg. socioeconomic status), preschool experience, parental attitudes towards the French language and parents' educational goals for children entering the two school programs. Teachers were found to use informal criteria for recommending French immersion or the English program. The validity of these criteria will be assessed in this longitudinal study.

Individual differences in performance on measures of the Early Identification Assessment Battery were found for the 200 children assessed intensively. These measures, as well as Biographical and Background Information and Teacher Ratings, will be followed closely. Their predictive validity with regard to success in primary French immersion programs will be assessed against criterion measures of achievement in French and English obtained in 1978 in the Spring of five-year-old French immersion kindergarten and in 1979 in the Spring of French immersion grade one.

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INTRODUCTION

The study to be reported represents the third study in a series concerned with specific learning difficulties of some children in primary French immersion programs. In the primary French immersion program, English-speaking children beginning in the primary grades are exposed to French as the language of instruction for at least fifty percent of the school day. In many school systems, kindergarten and grade one are taught exclusively in French with instruction in the English language being introduced and gradually increased in later grades.

The reader is referred to the introductory pages of two earlier studies (Trites and Price, 1976, 1977) for in-depth discussions of important issues in the area of second language learning. Several variables which are potentially important in affecting second language learning were discussed. These include: linguistic aptitude, attitudes, biological maturation, cognitive development, age, IQ scores, attitude, personality characteristics, and specific learning disabilities. A recent paper by McLaughlin (1977) provides an excellent review of issues related to second language learning in children. He points out that, contrary to popular belief, "older children do better on almost all aspects of language acquisition than do younger children in

comparable circumstances" (p. 455). Phonological aspects are a possible exception with younger children having less difficulty acquiring native-like pronunciation. The critical-period hypothesis (Lennenberg, 1967) is also shown to be questionable.

Major Findings of the First Two Years of Study

The first two years of study were concerned with Learning Disabilities Found in Association with French immersion Programming (Trites and Price, 1976, 1977). In the first study it was found that children who have difficulty in primary French immersion were distinct from children diagnosed as having a primary reading disability, minimal brain dysfunction, a primary emotional disturbance, or as being hyperactive. The children with difficulty in French immersion had a unique pattern of deficits. This group had a high IQ and excellent motor and sensory functions, and yet performed the most poorly on a complex psychomotor problem-solving test. The findings were interpreted as evidence of a maturational lag in the temporal lobe regions of the brain. It is known that the temporal lobes are important structures in subserving verbal and nonverbal perceptual and memory functions, as well as containing the auditory centres of the cerebral cortex.

The second study (Trites and Price, 1977) was undertaken to cross-validate the findings of the first study using a nonclinical sample and to further delineate the maturational deficit. Sixteen children who had dropped out of French immersion (Drop-out) were matched for age and sex with 16 children who began in the same French immersion class as the Drop-outs but were still doing well in the French immersion program (Control). The Control group was characterized as having higher scores on IQ tests, a higher socioeconomic level, and a history of starting nursery school at an earlier age compared with the Drop-out group. The neuro-psychological profiles of Drop-outs and Controls were substantially different. With IQ controlled statistically, these groups differed on behaviour rating scales and specialized reading subskill tests of oral reading and comprehension. The earlier finding of a tactual performance deficit suggesting a specific maturational lag in temporal lobe regions in the Drop-out group was evident. The difference was statistically significant in younger children (below age 9), but, consistent with a maturational lag hypothesis, the differences had disappeared in the over-age-9 group, although the trend was still in favour of the Control group. Sub-groups of Drop-outs were observed with the pattern of deficits in the left-handed Drop-outs differing from that in the right-handed Drop-outs.

Predicting Success in School

From this initial work, it was clear that not all children of above average intelligence along with excellent motor and sensory skills experienced success in the primary French immersion program. Although parents' decisions to enrol a child in French immersion may be guided by informed and widely used selection procedures, no set of variables has been validated as predictive of success or failure in the primary French immersion program. The early identification of children who are a high risk for failure in a primary French immersion program is the goal of a third study. The first phase of this study is presented in this report.

There has been a great deal of research devoted to the prediction of success or failure in school, or in handling specific aspects of the school curriculum, especially reading. Successful screening of children, i.e. the identification of children who are likely to encounter difficulties in some aspects of the school curriculum, is viewed as an important goal. With such procedures, steps can be taken early in a child's career to avoid programs in which he is likely to encounter failure, to design remedial techniques suitable for the child and to encourage flexibility in existing programs so that the needs of individual

children will be met. Early failure in a school program can be very harmful to a child and should be avoided whenever possible (Kohlberg, La Crosse, and Ricks, 1972).

Attempts to develop screening techniques have been, on the whole, guided by the view that learning and behaviour problems arise from deficits within the child. Behaviours felt to be requisite for the acquisition of academic skills may be missing due to a lack of opportunity to learn them, some lag in development or a deficit in the child. Thus, screening procedures have involved such measures as intelligence tests, tests of perceptual and linguistic functioning, sensory tests, motor tests, teacher ratings of behaviour and skill mastery, birth, health and social histories. While it is important to identify the child's chacteristics it is also important to remember the importance of the interaction between learning situation variables and the child's learning capabilities (Keogh and Becker, 1973). Adelman (1970) has cautioned that many learning and behaviour problems stem from deficiencies in the learning environment in which the children are enrolled. Thus, the prediction of success or failure in school will be more accurate if the interaction between the child's characteristics and the characteristics of the school program in which he is enrolled is considered.

How well can we predict school success and school failure? What measures are the best predictors? Attempts to answer such questions have generally involved administration of a battery of tests (predictor variables) in kindergarten or early in grade one followed by measures of achievement or skill mastery (criterion variables) at the end of grade one or at different grade levels as the children progress through school. Commonly, correlations are computed between the predictor and criterion variables to determine their degree of association; multiple regression techniques are applied to determine the relative predictive validity of the predictors; and, occasionally, children identified as probable successes or failures according to scores on the predictor variables are rated as successes or failures on the basis of the criterion variables and the percentage of correct predictions is determined.

Predicting Success in French immersion Programs

To date, there have been few attempts to determine variables predictive of later achievement in primary French immersion programs. Edwards and Smythe (1976) assessed the predictive validity of measures obtained in grade one French immersion with regard to performance on measures of English and French achievement in grade four French immersion.

Predictor and criterion variables for two different samples were entered in stepwise multiple regression analyses. Significant predictors of later achievement were found, although they differed between the two samples. Teacher ratings of behaviour were among the best predictors. These investigators viewed their findings as supportive of the "expectation that a test battery may be developed which would aid in the screening of children wishing to enter this program in kindergarten and grade one" (Edwards and Smythe, 1976, p. 90).

Swain and Burnaby (1976) attempted to relate personality characteristics of kindergarten children, as rated by their teachers, to French language achievement scores obtained in kindergarten, grade one and grade two. T-test comparisons indicated that children in French immersion Kindergarten were rated more highly in terms of happiness, perfectionist tendencies and talkativeness compared to children in the English program. The authors attributed the personality differences to preselection factors based upon characteristics parents consider to be important for success in French immersion. However, of these characteristics, only perfectionist tendencies correlated highly with second language achievement. Quickness in grasping new concepts was also related to second language achievement. Thus, personality characteristics may be related to success in French immersion and should

be further evaluated to determine the extent of their relationship to second language achievement.

In a study of the effects of preschool experience upon grade one achievement, Lokan, Halpern, Day and Brooks (1976) found that children who had attended four-year-old kindergarten and children who had attended nursery school performed better on some achievement tests at the beginning of grade one compared to children who had not attended these programs. However, this relationship was not apparent at the end of grade one. Investigation of home variables related to preschool attendance indicated that nursery school attenders had more favorable home backgrounds (for example, parents read to the child more frequently and there were more books in the home) than non-attenders. In addition, Lokan and Day (1976) reported that significantly more children in the French immersion program attended nursery school compared to children in the English program group. The relationship between nursery school attendance and home background variables led the authors to suggest that children in grade one French immersion programs tend to come from more advantaged homes than children in regular grade one programs. Nursery school attendance was not related to success in French immersion in this study, and this area warrants further investigation.

The results of a recent attempt to assess the predictive validity of measures obtained early in a child's school career upon later success in French immersion are not yet available (Tourond, Obadia and Morrison, Carleton Board of Education, Ottawa, Ontario). In this study, French immersion kindergarten teachers completed a checklist rating the child in terms of motor skills, auditory skills, language and speech, social-emotional development, visual skills and concept development. Preliminary results indicated that the checklist itself was not highly correlated with French language achievement at the end of grade one. However, when the checklist subtest scores were combined with Gates-MacGinitie reading readiness scores, better predictive validity was obtained (multiple regression coefficient of .59) in relation to success in French at the end of grade one. Even this combination leaves considerable variability unaccounted for.

The study described earlier (Trites and Price, 1977) pointed to several variables which should be considered in a screening battery designed to predict achievement in primary French immersion programs. These included factors such as handedness, socioeconomic status, preschool experience, parental attitudes, IQ (including both verbal and nonverbal measures), reading subskills, level of phonological development, psychomotor and other problem-solving

skills, and behaviour ratings.

Predicting Success in Regular School Programs

Many factors influence achievement in school including: intelligence, perceptual functioning, linguistic functioning, motivation, emotional adjustment, home environment, socioeconomic status, health status and so on. Screening batteries designed to identify children who may experience school difficulty attempt to sample as many of these factors as possible (Biemiller, 1974). Other attempts to predict success or failure in school choose one or two measures only. In the review to follow, studies which include a wide variety of measures in screening batteries will be discussed first, followed by studies of selected measures.

Complex Screening Batteries

Several characteristics of children have been assessed in attempts to predict school success or failure, particularly in the area of reading which is seen as an essential component of academic programs. In a well-known study of the prediction of reading failure, DeHirsch, Jansky and Langford (1966) administered 37 tests to children at the end of kindergarten including measures of fine and gross motor abilities,

laterality, body image, visual and auditory perceptual abilities, receptive and expressive language skills, reading readiness (e.g. letter copying, Gates Rhyming and Matching) and style of problem-solving. Several of these tests were found to correlate positively with end-of-second-grade achievement in reading, spelling and arithmetic. Intelligence also correlated significantly with second grade reading achievement and the tests were better predictors for girls than for boys. Various combinations of predictor variables were tested to determine a "Predictive Index" which would best identify high risk children. This index was comprised of the following measures: Pencil Use, Bender Visuo-Motor Gestalt Test, Wepman Auditory Discrimination Test, Number of Words Used in a Story, Categories, Horst Reversals Test, Gates Word Matching Test, Word Recognition I and II, Word Reproduction (p. 41-42). On the basis of critical scores on Predictive Index tests, 91% of the children identified as failures actually failed reading and/or spelling tests in grade two, but errors were made in that children were also identified as failures who subsequently succeeded on reading and spelling tests.

In a study by Eaves, Kendall and Crichton (1972, 1974) the tests of the Predictive Index (deHirsch and Jansky, 1966), the Draw-a-Person Test and Name Printing were administered in the Fall and Spring of kindergarten. The

Co-operative Primary Tests were administered at the end of grade two. They found that prediction of grade two achievement was better when the predictor variables were administered at the end of kindergarten. A subgroup of children were given additional psychological and neurological assessments, parent and teacher ratings and the Metropolitan Readiness Test. Multiple regression analysis indicated that a small number of these 196 measures was highly efficient in predicting achievement on the Co-operative Primary Test. A combination of female sex, left-right distinction, Horst Reversals, Pencil Use, Wechsler Preschool and Primary Scale of Intelligence (WPPSI) Information subtest and Full Scale IQ, the Visual Association subtest of the Illinois Test of Psycholinguistic Abilities (ITPA) and motor integration predicted reading achievement (R^2 = .99). Listening was predicted best by WPPSI Mazes subtest and Full Scale IQ and ITPA Mean Scale Score (R^2 = .95). Word Analysis was predicted best by normal cranial nerves, pencil skills, Horst Reversals and teacher's estimate of "ready for Grade one" (R^2 = .97). The authors concluded that these variables were good predictors of school achievement and that it is not difficult to identify children who can be expected to fail in school. However this study has not been cross validated. Although the Predictive Index (deHirsch et al., 1966) was found to predict

school success, the study by Eaves et al. (1974) indicated that only three of the 15 most useful predictors were from the Predictive Index, while four useful predictors were IQ measures.

In a later study, Jansky and deHirsch (1972) administered a screening index comprised of letter naming, picture naming, Gates Word Matching, the Bender Visuo-Motor Gestalt Test and the Sentence Memory subtest of the Binet test to children in the spring of their kindergarten year. These predictors were submitted to a stepwise multiple linear regression analysis with grade two reading and spelling tests as the criterion measures. A multiple correlation coefficient between the predictor tests and second grade reading was .66 and 79% of the failing readers were identified. Socioeconomic status was also assessed and was found to correlate .49 with second grade reading.

Adelman, Feshbach and Fuller (1973) have illustrated other useful predictors of school success or failure. In the spring of their kindergarten year, children were assessed on the following measures: WPPSI, Otis-Lennon IQ test, and the Predictive Index (deHirsch et al., 1966). Teachers filled out the Kindergarten Student Rating Scale (KSRS) assessing areas of cognitive, affective and social functioning in kindergarten. At the end of the first grade, the Cooperative Reading Test and Gates-MacGinitie Reading Test

were administered. A stepwise multiple regression analysis indicated that the KSRS was the best predictor of reading achievement, followed by the Predictive Index and the WPPSI. Thus, in this study, kindergarten teachers' ratings predicted first grade reading performance as well as the psychometric battery.

The Windsor Early Identification Project (O'Bryan, 1976) was designed to identify children who were likely to have difficulty coping in school. Predictor variables were obtained in kindergarten and included tests of colour recognition, receptive and expressive language, auditory association and mathematics. These test variables were combined with other predictors including teacher ratings, descriptive data (handedness, age, height, weight, language background), and social and medical history data. The main criterion measure was the Smith-Francis test which included subtests measuring figure copying, letter and word likeness, listening and following directions, beginning sounds, and visual memory. The test measures were entered into a multiple linear regression analysis with the Smith-Francis total score and a multiple r of .72 was obtained. With the addition of other predictor variables, the multiple r increased to .78. This extensive study points to the predictive validity of test measures over the many descriptive variables assessed.

Wand (1974) assessed the reading readiness, laterality, hearing, vision and speech of kindergarten children. Reading achievement was assessed in grades one and two. Reading readiness subtest scores, combined with age, audiometer rating and type of classroom (traditional versus open-concept) provided the highest correlations with criterion measures. However, important sex differences were noted such that the best predictors differed for boys and girls. Boys' grade one reading performance was predicted best by a visual test, articulation test and an auditory test (R^2 = .52). Girls' grade one reading perforamcne was best predicted by a visual test and an auditory test (R^2 = .45).

The studies described above indicate the complex combinations of measures which have been found to be predictive of later school achievement. Several points should be noted. Sex may be important in predicting school achievement in view of the finding by deHirsch et al. (1966) that their tests were better predictors for girls than for boys and Wand's (1974) demonstration of different predictors for boys and girls. Socioeconomic variables should be considered since they were found to correlate with reading achievement (Jansky et al., 1972). Better predictions are achieved when the screening battery was administered more closely in time to the criterion measures, i.e. at the end of kindergarten rather than at the beginning (Eaves et al., 1972,

1974).

The studies discussed to this point have demonstrated the wide variety of factors that have been related to success or failure in school or in reading. These include sex, socioeconomic status, IQ test scores, auditory and visual abilities, reading readiness, language skills, motor skills and teacher ratings. Many of these factors will be examined in further detail below.

Screening Batteries Including "Readiness" Measures

Several screening batteries have incorporated measures of "readiness" which assess the developmental level necessary for the acquisition of skills, or the accomplishment of prerequisite skills which form a foundation for learning new skills. School readiness tests attempt to tap the level of development of skills important in the kindergarten or grade one program, while reading readiness tests identify skills requisite for, or involved in the reading process.

In a review of reading readiness tests, Farr (1969) described the lack of reliability and predictive validity of several tests. However, the Metropolitan Readiness Test total score was reported to be a good predictor of success in learning to read for middle class children. Bagford (1968) found that the Metropolitan Readiness Test correlated with achievement as measured by the Iowa Test of Basic

Skills in grades four through six. However, Cawley, Goodstein and Burrow (1972) reported that the Metropolitan, and other readiness tests, tend to correlate highly with group IQ tests. They concluded that such tests were no better in predicting success than IQ tests or rating scales. Better predictive validity is achieved when weighted subtest scores are used rather than the total test scores.

Ferinden, Jacobson and Linden (1970) found that the scores of kindergarten children on the Metropolitan Readiness Test varied greatly which caused some doubt as to its validity in predicting first grade readiness. In this study, the readiness test was useful as a predictor of later achievement only when the total test scores fell below the 30th percentile.

Goodstein, Owen and Cawley (1975) assessed the predictive validity of a battery of tests administered at the beginning of grade one in relation to Metropolitan Achievement Test scores obtained in grade six. The predictor variables included Illinois Test of Psycholinguistic Abilities (ITPA), Metropolitan Readiness Test, Frostig Developmental Test of Visual Perception, Stanford-Binet IQ, Detroit Test of Learning Aptitude and letter recognition. The IQ and readiness measures were correlated ($r = .47$). Multiple regression analysis indicated that the Metropolitan Readiness Test was the best predictor of reading and

mathematics as measured by the Metropolitan Achievement Test. However, even this test accounted for only 24% to 30% of the variance.

Plant and Southern (1968) administered four predictor variables at the beginning of kindergarten: Stanford-Binet Intelligence Test, Peabody Picture Vocabulary Test, Pictorial Test of Intelligence, and WPPSI. An additional predictor variable was the Lee Clark Reading Readiness Test administered at the end of the kindergarten year. The criterion variable was the Stanford Achievement Test administered at the end of grade one. All correlations between predictors and the criterion were greater than .40 with the Lee Clark Readiness Test and WPPSI Full Scale and Performance IQ most highly related to achievement. This study indicated that readiness testing and intelligence testing may predict later achievement, but there was no assessment of the relative contribution of these variables to this prediction.

Hopkins and Sitkei (1969) evaluated a readiness test (Lee Clark Reading Readiness) and an intelligence test (California Test of Mental Maturity) administered at the beginning of grade one as predictors of reading at the end of grade one (teacher's marks, standardized reading test). While correlations with the criterion measures were similar for both predictors, multiple regression analysis indica-

ted that use of the IQ test together with the readiness test had little better predictive validity than the readiness test alone. However, this particular readiness test has been found to correlate highly with IQ (Cawley et al., 1972). Therefore, its predictive validity may rest upon its relationship to intelligence. The IQ measure added little to the predictive strength of the readiness measure because similar abilities were being tapped.

The studies employing "readiness" measures indicate clearly the importance of IQ test scores in predicting achievement in school. Readiness measures have frequently been found to correlate highly with IQ. The relationship between intelligence and achievement, and between intelligence and readiness measures must be considered when the predictive validity of readiness measures is being assessed.

Specific Areas of Measurement

In contrast to screening batteries which have attempted to tap a wide range of factors, several studies have focused on specific skills or processes as they relate to success or failure in school or in learning to read.

a) Auditory abilities: Dykstra (1965) administered an intelligence test and seven measures of auditory discrimination at the beginning of grade one. The criterion variables were the Gates Word Recognition and Paragraph Reading

tests at the end of grade one. IQ was significantly related to reading achievement. Auditory discrimination measures showed significant correlations with achievement, but the correlations were consistently low. It was concluded that if one's goal is to predict who will be successful in learning to read, intelligence testing will yield predictions similar to predictions based upon extensive auditory discrimination measurements.

b) Visual abilities: Visual discrimination abilities have also been the focus of studies attempting to predict success or failure in learning to read. Barrett (1965) reviewed over 20 studies correlating beginning-of-first-grade visual discrimination test scores with end-of-first-grade reading achievement. Predictor and criterion measures varied widely and although many studies demonstrated high correlations between measures, i.e. greater than .40, others reported negligible correlations. However, the studies reviewed did indicate that the visual discrimination of letters and words had a higher predictive relationship with first grade reading than visual discrimination of geometric designs and pictures. This finding points to the importance of selecting predictor variables that are as closely related as possible to the skill of interest.

In the study by Goodstein et al. (1975) reported earlier, the Frostig Developmental Test of Visual

Perception was not a good predictor of later achievement in reading or in mathematics.

Four subtests of the Lee Clark Readiness Test assess visual discrimination abilities. The demonstrated predictive validity of this test (Plant and Southern, 1968; Hopkins and Sitkei, 1969) has been put forth as evidence of the relationship between early visual discrimination ability and later achievement (Cawley et al., 1972). However, the high correlation between the Lee Clark Readiness Test and IQ weakens this position (Cawley et al., 1972). Of the available tests of visual discrimination, the Gates subtests of word-matching, word-card matching, and reading letters and numbers appear to have the best predictive validity with regard to reading achievement (Barrett, 1965; Cawley et al., 1972).

c) Visual-motor abilities:

The Bender Gestalt Visuo-Motor Test, a measure of ability to copy geometric designs, has been identified as a good predictor of school success. Koppitz, et al. found that the Bender Gestalt administered at the beginning of first grade correlated highly (r = .55) with Metropolitan Achievement reading and mathematics tests at the end of first grade. When a Human Figure Drawing Test was combined with the Bender Gestalt, better prediction was achieved. The authors suggested that the combination of the two tests

takes into account many of the factors which affect achievement.

Keogh and Smith (1967) also examined the predictive value of the Bender Gestalt test. Scores obtained on this test in kindergarten were good predictors of success in grade three as measured by the California Achievement Test and in grade six as measured by the Iowa Test of Basic Skills. Potentially good readers were predicted with the highest accuracy. Prediction of failure was weak. It was suggested that the Bender Gestalt be used in conjunction with other screening devices.

In another study, Keogh and Smith (1970) compared the Bender Gestalt test administered in kindergarten and teachers' evaluations of reading readiness as predictors of achievement in grades two through five. Teachers' ratings showed a consistent significant correlation with achievement test scores, while the Bender Gestalt correlations were lower and not significant. The Bender-Gestalt again appeared to be a good predictor of high potential groups. Good performance was predictive of success in school, while poor performance was not predictive of failure. Teacher ratings predicted both high potential and high risk children.

Other studies have found that the usefulness of the Bender Gestalt test as a predictor of achievement appears to be weak when this test is administered in kindergarten.

Ferinden, et al. (1970) found that the kindergarten Bender Gestalt had a very low correlation with first grade reading achievement measured by the Wide Range Achievement Test ($r = .28$). In contrast, for the same group of children, a high correlation was found between the Bender Gestalt adminstered inthe first grade and first grade reading achievement ($r = .76$).

The limited usefulness of the Bender Gestalt administered in kindergarten was also illustrated in a study by Dockeci, Frede and Gautney (1969). This test, administered at the beginning of kindergarten, was not found to be a good predictor of performance on the Metropolitan Readiness Test at the end of kindergarten. WPPSI Mental Age was found to be the best predictor of end-of-kindergarten achievement ($r = .80$).

Thus, while the Bender Gestalt test is a potentially useful screening instrument, especially in predicting success, it should be used cautiously below the first grade level. Poor performance should not be regarded as an indicator of potential difficulty, but merely as an indicator that a further assessment of the child should be undertaken.

d) Language factors: Language factors have been considered important in predicting school success and failure. The Illinois Test of Psycholinguistic Abilities (ITPA) is one of the most widely used language measures. Newcomer and

Hammill (1975) reviewed studies which correlated ITPA subtests with indices of reading, spelling and arithmetic to determine their predictive validity. In four longitudinal studies, the Auditory Association subtest was the only useful predictor of reading. However, both the ITPA and achievement correlate with IQ which was not controlled in these studies. In 24 studies which measured the ITPA and achievement concurrently, 9 of the 12 ITPA subtests lacked predictive validity for any aspect of academic achievement. Only the Grammatic Closure subtest retained predictive validity when IQ was controlled. These findings suggest that the ITPA has negligible predictive validity and should not be used for screening potential learning problems.

Faust (1970) raised several important issues in a discussion of language factors in relation to achievement. Language factors were found to account for differences in achievement test scores in many studies. However, Faust (1970) pointed out that "children who have deficiences in language understanding and use may or may not become learning problems depending upon the nature of the situations they encounter" (p. 339). Merely identifying deficiencies in a child does not allow accurate prediction of educational outcomes; situational variables such as the method of teaching interact to produce a certain level of achievement.

e) Preschool experience: Demographic variables, behaviour ratings, and readiness variables comprised predictor variables obtained in kindergarten and related to the criterion measure of grade one achievement (Stanford Achievement Test) in a study by Huberty and Swan (1974). The predictive validity of the kindergarten variables was assessed for children who had attended preschool programs and for nonattenders. Different predictor variables were found to be important for these two groups. For nonattenders, academic readiness was the best predictor of grade one achievement. However, for children with preschool experience, behaviour variables were among the best predictors of achievement.

Lokan et al. (1976) examined the effect of preschool experience upon grade one performance. In contrast to the above findings, these authors did not find different patterns of predictor variables for preschool attenders and nonattenders. Biographic variables (age, sex, birth order, number of children), home reading environment, socioeconomic level and readiness measures were entered in canonical correlation analyses with criterion variables consisting of grade one scores in mathematics and reading. These analyses were computed separately for children having no preschool attendance and those who had attended preschool. Reading readiness accounted for the largest proportion of

variability for both groups.

The contrasting results of these two studies leave open the question of the importance of various predictive variables for children with varying preschool experiences and also the issue of attendance at preschool as a predictor of school achievement. Preschool attendance should be considered in studies predicting success or failure in school.

f) Teachers' ratings: Several studies have demonstrted the value of teachers' observations in identifying children with potential learning problems. Keogh and Smith (1970) evaluated the predictive validity of kindergarten teachers' evaluations of reading readiness on a five point scale in relation to achievement evaluated in grades two through five. The correlations between teachers' ratings and achievement were consistently significant and higher than the correlations between the Bender Gestalt and achievement. The authors concluded that teacher ratings were good predictors for high potential and high risk children.

Ferinden et al. (1970) found that kindergarten teachers were 80% effective in predicting potential learning problems in grade one, using subjective judgment alone. Adelman et al. (1973) found that the Kindergarten Student Rating Scale completed by teachers was the best predictor of end-of-first-grade reading achievement.

Novack, Bonaventura and Merenda (1973) developed a pupil behaviour observation scale for use by teachers. The Rhode Island Pupil Identification Scale (RIPIS) evaluated behaviour in regular classroom activity and behaviour relating to the child's written work for children in kindergarten through grade two. Behaviour ratings obtained in the Fall and Spring together with IQ test data were related to pupil educational outcome categories, i.e. classifications by teachers with regard to expected success or difficulty in the next higher grade. A multiple discriminant analysis indicated a high percentage of correct predictions of learning problems. The teacher was identified as the key person in detecting difficulties.

Tobiessen, Duckworth and Conrad (1971) evaluated the predictive validity of the Schenectady Kindergarten Rating Scales (SKRS), a battery of teacher administered behaviour rating scales. First grade diagnoses of achievement were based upon first grade teachers' ratings of behaviour and achievement and scores on the New York State Readiness Tests. SKRS profiles were examined and diagnoses of first grade achievement were made. SKRS profiles were only moderately successful in predicting first grade diagnoses. The best predictors were scales involving impulse control, language and perceptual-motor skills.

A retrospective study by Westmann and Rice (1967) correlated behaviour ratings based on nursery school records with those based on later school records through high school. They found that children with adjustment problems in nursery school tended to have adjustment problems in later school life. Nursery school and kindergarten teachers' observations were seen to have potential importance in identifying children who are high risks for later difficulty.

In a study of Attwell, Orpet and Meyers (1967) observations of behaviour in kindergarten children were made by outside examiners during a testing session. The Test Behaviour Observation Guide assessed ten behaviours in the areas of co-operation-effort, confidence-in-situation, motor speed-dexterity and hyperactivity. The kindergarten ratings were correlated with California Achievement Test scores in grade five. While many correlations were significant, "attention" predicted all six areas of the achievement test. The behaviour ratings were especially effective in predicting reading achievement. The evidence from the above studies indicates that behaviour in kindergarten, whether assessed by teachers or outside observers, should be considered in predictions of later achievement.

Summary and Aims of the Present Study

The studies presented to this point are a sampling of the research in the area of early identification of learning problems. It can be seen that this problem is very complex. Although many factors were found to be significantly correlated with school success and their predictive validity was evident, the overall success of early identification procedures has been low. In many cases a large degree of variance was left unaccounted for. This indicates that perhaps a wider range of factors must be assessed to improve predictive ability, or that a change of emphasis is warranted. In an excellent discussion of early identification, Keogh and Becker (1973) concluded that:

> Relationships between single, specific preschool test findings and later school achievement are too low to allow definitive prediction about individual children (p. 7).

They suggested that the research in this area has focused too heavily upon the child and has not adequately considered the learning situation. Adelman (1970) has also suggested an alternative emphasis to the "disordered child", i.e. an emphasis on the dynamic nature of the process by which school skills are acquired. A child's success or failure in school is viewed as a function of the interaction between

the child's characteristics and the characteristics of the specific classroom situation in which he must learn, for example, a French immersion program. Faust (1970) has also noted that "when situational factors at home and at school are overlooked, we find relatively low correlations between individual traits and school achievement" (p. 337).

These views have implications for research in the area of early identification of learning problems whether they be general, or specific to a particular school program. They require that one not only consider the deficits of the child, but also his abilities, his home background, and his reaction to the classroom situation. Effective screening measures should also be close to the criterion measures in content and in time, taking into consideration the requirements of the school program of interest.

In view of the importance of the interaction between the child's characteristics and the situation characteristics, the child's behavior in the classroom is considered to be a potentially valuable predictor of school success. Several studies reviewed above support the inclusion of teacher ratings of classroom behaviour in screening batteries (Keogh and Smith, 1970; Novack et al., 1973; Tobiessen et al., 1971). Classroom behaviour ratings can yield information about a child's problem-solving strategies, persistence, attentiveness, cooperativeness and other factors which

affect his ability to learn in the classroom situation.

The first phase of a three year project designed to identify a set of variables predictive of success or failure in primary French immersion programs is reported. The predictive validity of measures obtained for children in the Spring of their English four-year-old kindergarten program will be assessed in terms of criterion measures of academic achievement in English and French obtained in the Spring of five-year-old French immersion kindergarten and in the Spring of grade one French immersion. The initial selection and assessment of children in four-year-old kindergarten programs is described in this report. Extensive biographical and background information, parental opinions, teachers' ratings and teachers' opinions are also presented for four-year-old kindergarten children.

THE SAMPLE

Fifty-one of the principals of the 53 elementary schools in the Ottawa Board of Education offering an English four-year-old kindergarten program agreed to participate in the study. A fifty-second school offered a French immersion four-year-old kindergarten program. Teacher's Ratings (see Appendix 1) and Biographical and Background Information Questionnaires (see Appendix 2) were distributed to the teachers and parents of 1,330 children in 77 four-year-old

kindergarten classes in the 51 schools.

A random half of the 51 participating schools was selected for participation in the three year follow-up study. The area served by the Ottawa Board of Education was divided into grids based on geographical boundaries and a random half of the schools located in each grid was selected. These grids and the original schools selected are presented in Figure 1. Parents who had indicated the intention to enrol their children in five-year-old French immersion kindergarten in September of 1977 were sent letters requesting permission to have their children participate in the three year Early Identification Project. Parents of children for whom French would be a third language were not contacted. One hundred and twenty-seven eligible subjects were obtained in this sample. Children were excluded as not eligible for participation in the project for two main reasons: a) they would not be enrolled in a French immersion program in an Ottawa Board of Education school in September of 1977; or, b) parents did not grant permission for participation in the project. In order to reach the target of 200 eligible subjects, five schools with no eligible subjects were then replaced by schools in the same areas based on the Ottawa Board of Education divisions, and four schools were added to the sample (three schools in Area 2 and one school in Area 4). The schools in the

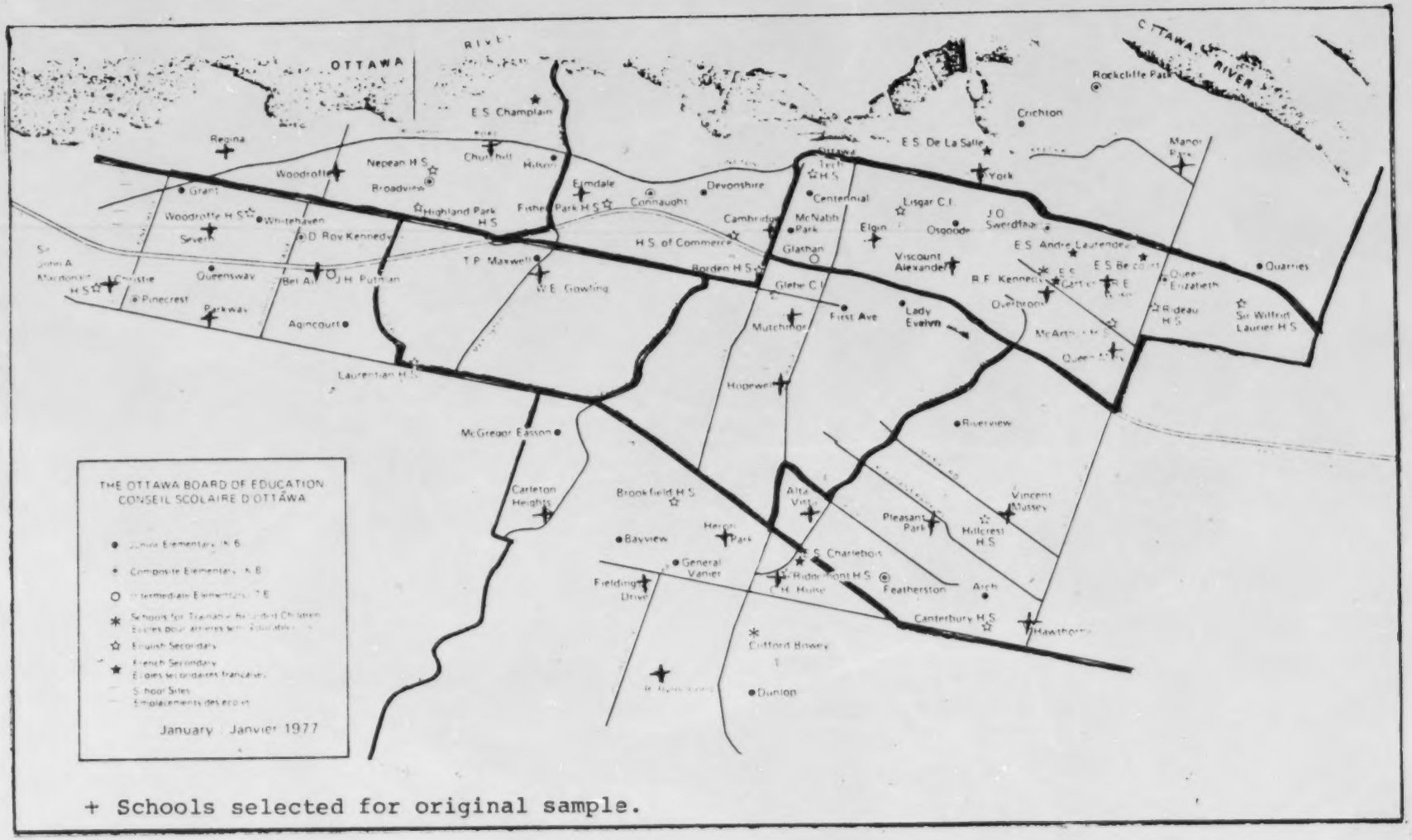

FIGURE 1: Original sample of Ottawa Board of Education schools selected randomly from within grids based on geographical boundaries.

revised sample are illustrated in Figure 2. The final sample of 200 Ss was drawn from 32 schools throughout the Ottawa Board of Education. These schools are illustrated in Figure 2. Nine of these schools offered a five-year-old French immersion kindergarten program. Sixty-two percent of the subjects were in the schools offering a French immersion program.

PROCEDURE

Questionnaire Data

The teachers of the 1,330 four-year-old kindergarten children in 77 classes were asked to complete a brief rating scale for each child in their class. The Teacher's Ratings (see Appendix 1) provided information about characteristics of four-year-old kindergarten children and about those characteristics held important by teachers in the selection of a school program.

Teachers distributed the Biographical and Background Information Questionnaire (see Appendix 2) to the parents of all children in their four-year-old kindergarten classes. (These questionnaires were returned to the school.) The purpose of this questionnaire was to gather biographical and background information that may be related to selection of a school program, to identify characteristics held

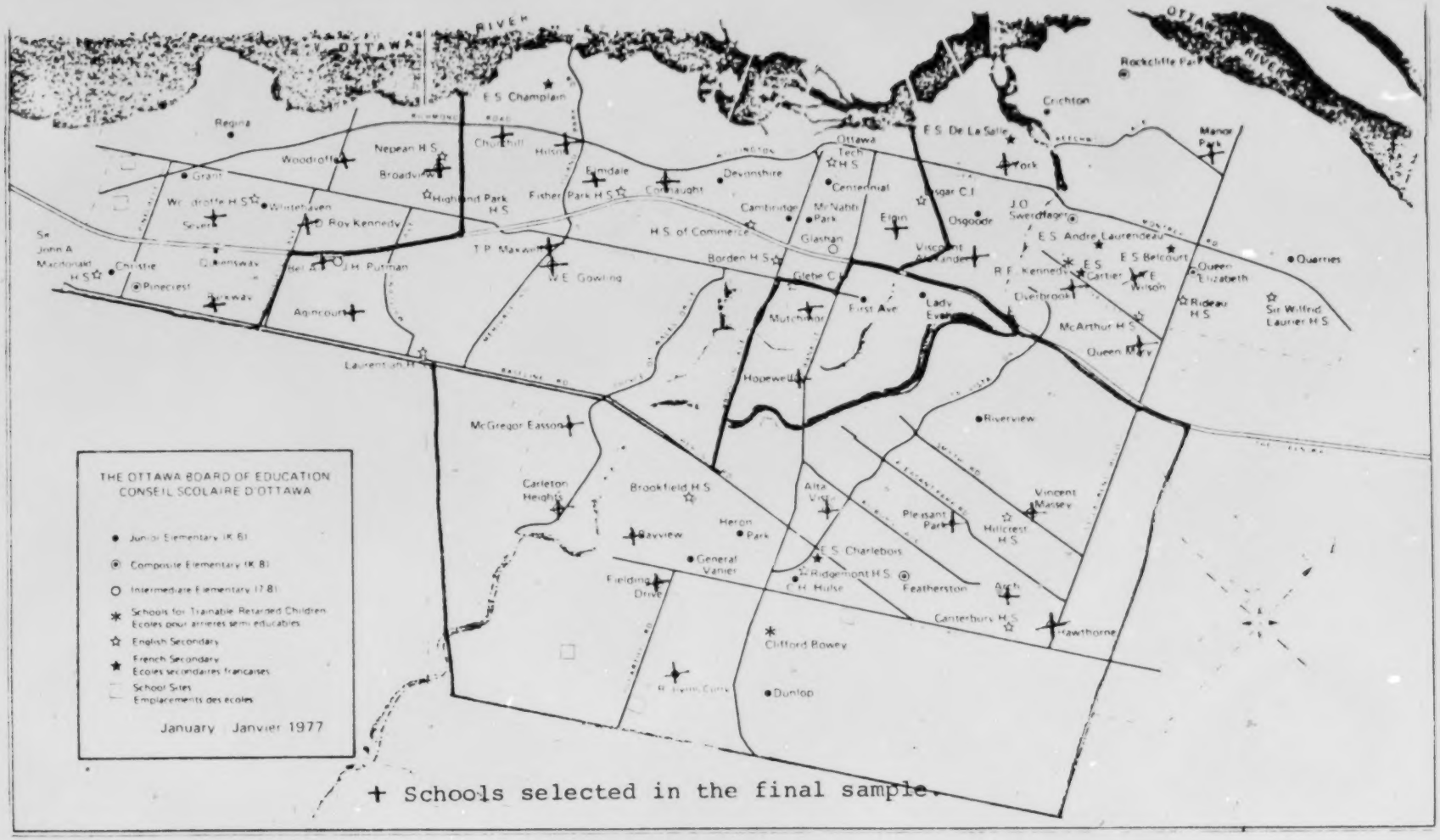

FIGURE 2: Final sample of Ottawa Board of Education schools selected from the six area divisions of this board.

important by parents in program selection and to provide a basis for assessing the representativeness or uniqueness of children enrolled in French immersion kindergarten. This questionnaire was concerned with characteristics of the children, of their parents and of their homes. The factors assessed included age, sex, hand dominance, preschool experience, socioeconomic status, number of books in the home, languages in the home, parental attitudes towards learning French, parents' reasons for choosing the regular English program or the French immersion program for five-year-old kindergarten and characteristics parents considered to be important for success in French immersion.

Early Identification Assessment Battery

A variety of test measures and behaviour ratings were obtained for the sample of 200 children entering five-year-old French immersion kindergarten in September of 1977. The Early Identification Assessment Battery was administered in two sessions. One session consisted of five tests selected from CIRCUS: An Assessment Program for Pre-primary Children (1974) administered by a member of the research team individually or to groups of two to five children. These tests assessed knowledge of quantitative concepts such as counting, relational terms and numerical concepts (CIRCUS 2: How Much and How Many); letter and

numerical recognition and discrimination (CIRCUS 5: Finding Letters and Numbers); auditory discrimination (CIRCUS 7: How Words Sound); comprehension, interpretation and recall of oral language (CIRCUS 9: Listen to the Story); and problem-solving (CIRCUS 13: Think It Through).

Each child also received an individual test battery administered by a member of the research team. This battery consisted of the ten psychometric tests described below, some of which were adapted specifically for this project.

Wechsler Preschool and Primary Scale of Intelligence (WPPSI): Wechsler (1963)

- Verbal IQ, Performance IQ, Full Scale IQ and subtest scale scores

Peabody Picture Vocabulary Test, Form B, (PPVT): Dunn (1965)

- receptive vocabulary measure
- mental age and IQ scores

Raven's Coloured Matrices, Board Form: Raven (1965)

- Consists of a booklet of patterns with missing pieces. The child is required to choose the piece to complete the pattern from among six moveable pieces of the same size and shape and to place this piece on the pattern in the correct orientation.

- Measure of Performance IQ

- Raw score and percentile score based on norms for children aged 5½

Wide Range Achievement Test (WRAT): Jastak and Jastak (1965)

- Reading, Spelling and Arithmetic grade scores and percentiles for children aged 5 years

Measure of hand dominance: Harris (1957)

- The child is asked to demonstrate various tasks and the hand used is recorded. In cases of mixed dominance, the hand used in name writing and pencil work is considered to be dominant.

Form Board

- This task is a modification of a psychomotor problem-solving task, the Tactual Performance Test described by Klove (1963).

The child is required to place three blocks (square, circle and triangle) measuring approximately 1¾ inches in diameter and 3/8 inch thick in the appropriate spaces in a board resting at a 45° angle behind a wooden screen. The child places his arm through a draped opening at the base of the screen and performs the task with his dominant hand, then with his nondominant hand and finally with both

hands together. The time for each trial and the number of blocks placed in the board are recorded. A trial is discontinued at 5 minutes if the child fails to place all three blocks in the board.

- Time scores, number of blocks placed in board and time per block scores

Picture Naming

The child is asked to name, as quickly as he can, 60 black and white pictures laid out on three large sheets (5 horizontal rows of 12 pictures each). The time required to complete this task and an error score are recorded. The error score consists of the number of pictures incorrectly named, or omitted, and partial scores for imprecise names (e.g. "hat" for "cap", or "man" for "farmer").

Colour Naming

The child is asked to name 10 colours and the number correctly named is recorded.

The colours were matched against the centroid colours of the Inter-Society Color Council-National Bureau of Standards (ISCC-NBS) Color Name Charts. The following colors are used: vivid red (11), vivid yellowish green (129), vivid greenish yellow (97), vivid purplish blue

(194), vivid orange (48), black (267), vivid reddish purple (236), dark brown (59), yellowish white (263) and medium gray (265).

A strip measuring 7¾ inches by 1½ inches was divided into coloured rectangles (¾ inches by 1½ inches) arranged in the above order from vivid red to medium gray.

Word Segmentation

- adapted from Fox and Routh (1975)

The child is required to segment words into syllables or other units smaller than the words given. The words are presented orally and the child's spoken response is recorded. Sixteen bisyllabic words are used (8 from Fox and Routh (1975) and an additional 8 of similar structure).

- The number of words segmented at conventional syllable boundaries and the total number of words segmented into units smaller than the words are recorded.

Renfrew Action Picture Test

- Renfrew (1971)

- Expressive language measure: information and grammar scores based upon the child's verbal descriptions of nine pictures.

In addition to the psychometric measures, the examiner and teachers completed the rating scales described

below:

Test Behaviour Observation Guide: Atwell, Orpet and Meyers (1967)

- Following the individual testing session, the examiner rated the child's behavior during testing in terms of ten nine-point scales.
- see Appendix 3

Conners Teacher Questionnaire (Behaviour Checklist) Conners (1969)

- The teacher rated each child on 39 items related to classroom behaviour, group participation and attitude toward authority. These ratings yield percent scores reflecting conduct problems, inattentive-passive behaviour, tension-anxiety and hyperactivity.
- see Appendix 4

Pupil Rating Scale: Myklebust (1971)

- The teacher rated each child on items reflecting auditory comprehension, spoken language, orientation, motor coordination and personal-social behaviour.

Statistical Analysis

The Teacher's Rating forms and the Biographical Background Information Questionnaires were coded by hand and then keypunched. Responses to open-ended questions, for

example, parents' reasons for enroling or not enroling their children in French immersion, were categorized and coded in terms of these categories. All of the questionnaire data were stored on magnetic tape and statistical analyses were conducted by means of the SPSS Package (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975).

The test data for the 200 children who were studied intensively was coded by hand, keypunched and stored on magnetic tape. This data set was merged with the questionnaire data set for these children. Statistical analyses were also conducted by means of the SPSS Package (Nie et al., 1975).

RESULTS

The results of the first year of this three year follow-up investigation will be discussed in three sections. The first section presents the results of the Teacher's Ratings distributed in four-year-old kindergarten classes throughout the Ottawa Board of Education. The results of the Biographical and Background Information Questionnaire distributed to the parents of the four-year-old kindergarten pupils are presented in the second section. In the third section, the results of the early identification assessment battery administered to 200 children who will be enrolled in five-year-old French immersion kindergarten in September

of 1977 are discussed.

Teacher's Ratings

Response Rate to Questionnaire: Teachers of 77 four-year-old kindergarten classes were asked to rate the 1330 children in these classes in terms of their level of ability, social maturation and motivation. They were also asked questions regarding the possibility of these children experiencing difficulty in school and the advisability of French immersion enrolment for each child (see Appendix 1). The return rate was extremely high with 1293 (97%) rating forms returned.

However, some of the teachers did not respond to the third question concerning the advisability of French immersion enrolment by making a choice based on the strengths and weaknesses of each individual child. Some teachers refused to make a recommendation because they felt it was a parental decision, they did not have the objective analytical tools necessary to recommend the advisability of primary French immersion or to predict success accurately, or because their classes were comprised of a large number of immigrant children. Other teachers responded globally to the program and did not make individual recommendations for each child. Some felt that no one should be recommended for early French immersion and the following reasons were

cited: strong personal feelings against the program were felt; the core French program was sufficient; later French immersion was more advisable; the need for a firm grounding in English and other basic subjects was more important; the effects and consequences of early immersion have not yet been well explored. In other cases, the global response to the program was the recommendation that all children should enrol in primary French immersion since it is an advantageous experience which can be easily terminated if necessary. In addition, responses for pupils in one class were considered to be "Special Cases" because the four-year-old kindergarten program was French immersion.

The Teacher's Ratings data for the "Special Cases" are omitted from some statistical analyses because the inappropriate responses do not deal with the questions of interest. For example, if teachers respond globally to the program, their responses do not indicate the basis for teachers' advice regarding French immersion enrolment for individual children.

School Difficulty: Teachers were asked to indicate if a child would encounter substantial difficulty in school and the reasons for that difficulty. Completed responses were recorded for 1253 children. Teachers indicated that 328 children (26.2%) would encounter difficulty in school and that an additional 48 children (3.8%) might encounter

difficulty. The frequency of occurrence of eight reasons for difficulty in school for these two groups are presented in Table 1. The most frequently cited reasons for predicting school difficulty were immaturity, followed by language difficulties, emotional or social maladjustment and concentration difficulties. It is evident that teachers of

Table 1

Frequency of Occurrence of Eight Reasons for Difficulty in School Cited by Teachers

Reasons for difficulty in School	Difficulty in School Group	Possible difficulty in School Group	Total	Percent
Below average ability	86	1	87	11.8
Language difficulties	134	9	143	19.4
Immature	155	16	171	23.2
Cannot concentrate	129	8	137	18.6
Emotional or social maladjustment	124	15	139	18.9
Not motivated	38	5	43	5.8
Medical or physical problems	6	3	9	1.2
Special learning difficulty	4	3	7	1.0

four-year-old kindergarten children are especially attentive to the level of maturity and social-emotional adjustment of their pupils in making this decision. These

factors are considered as frequently as the level of language development and more frequently than the level of ability when future school progress is discussed.

Teachers were also asked to rate the children as "Below-average," "Average" or "Above average" in terms of ability, social maturation and motivation. Teacher ratings on these variables were compared for three groups of children formed on the basis of teachers' responses to the question regarding the possibility of difficulty in school. One group was comprised of children who were not likely to encounter difficulty in school (No School Difficulty). A second group was formed of children who would possibly have difficulty in school (Possible School Difficulty). A third group included children who were likely to have difficulty in school as judged by their teachers (Likely School Difficulty).

Chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1976) indicated significant differences on all three variables. The number and percent of children in each category of ability, social maturation and motivation are presented in Table 2 for the three school difficulty groups. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) were computed for each rating category to determine if the significant differences were among groups at each level. The chi-square values and degrees of freedom for these tests

Table 2

Chi-square Analyses Comparing the
Three School Difficulty Groups on Teacher
Ratings of Ability, Social Maturation and Motivation

		No School Difficulty	Possible School Difficulty	Likely School Difficulty	Chi^2
ABILITY					
Below average	#	4	6	131	330.17**
	%	0.4	12.8	39.8	(df=2)
Average	#	504	29	174	0.821
	%	56.5	61.7	52.9	(df=2)
Above average	#	384	12	24	94.14**
	%	43.0	25.5	7.3	(df=2)
Statistical analysis		Chi^2 = 429.61** (df = 4)			
SOCIAL MATURATION					
Below average	#	102	20	194	217.86**
	%	11.4	41.7	58.3	(df=2)
Average	#	568	27	132	24.51**
	%	63.7	56.3	39.6	(df=2)
Above average	#	222	1	7	77.0**
	%	24.9	2.1	2.1	(df=2)
Statistical analysis		Chi^2 = 321.13** (df = 4)			
MOTIVATION					
Below average	#	32	13	149	279.2**
	%	3.6	28.3	45.0	(df=2)
Average	#	570	27	173	5.18
	%	64.0	58.7	52.3	(df=2)
Above average	#	289	6	9	91.1**
	%	32.4	13.0	2.7	(df=2)
Statistical analysis		Chi^2 = 372.67** (df = 4)			

*p < .05 **p < .01

are presented in the extreme right hand column of Table 2. There were significant group differences in the percentages of children rated as "Below average" on all three variables. The Likely School Difficulty group had the highest percentage of "Below average" ratings, followed by the Possible School Difficulty group, with the No School Difficulty group having the lowest percentage. There were also significant differences in the percentage of "Above average" ratings on all three variables. The Likely School Difficulty group had the fewest "Above average" ratings and the No School Difficulty group had the most with the Possible School Difficulty group falling in an intermediate position. There were no significant group differences in the percent of "Average" ratings of ability and motivation. However, there were significant differences in "Average" ratings of social maturation. The No School Difficulty group had the highest percentage of "Average" ratings, followed closely by the Possible School Difficulty group with the Likely School Difficulty group having the fewest.

This pattern of test results for the teachers' ratings of the three school difficulty groups suggests that teachers consider children who are below average in terms of ability, social maturation or motivation to be at a greater risk for difficulty in school compared to children who are rated as above average on these factors.

Advising French immersion Enrolment:

Teachers were asked if they would advise enrolment in French immersion five-year-old kindergarten for each child in their class (see Appendix 1). With the omission of the "Special Cases" described earlier, the teachers responded to this question for 958 children. French immersion was considered advisable for 365 children (38.1%). The teachers did not advise French immersion enrolment for 532 children (55.5%). Teachers were undecided about French immersion enrolment for the remaining 61 children (6.4%).

Teachers' reasons for not advising French immersion enrolment were classified in twelve categories. A maximum of three reasons was coded for each case. The frequency of occurrence of these reasons when French immersion was not advised, when teachers were undecided, and the total frequency and total percent are presented in Table 3. The most frequently cited reason for not advising French immersion was poor emotional-social adjustment. This was followed by immaturity, poorly developed language skills, ethnic language difficulties and short attention span. Thus, teachers appear to emphasize the child's social-emotional development and secondly, language skills rather than ability when advising against French immersion.

Teachers' reasons for advising French immersion enrolment were classified in nine categories with a maximum of

Table 3

Frequency of Occurrence of Twelve Categories of Reasons Cited by Teachers for Advising Against French immersion Enrolment

	French immersion not advised	Undecided	Total	Percent
1. Negative parental attitudes (towards French immersion)	9	0	9	1.1
2. Difficulties in home situation (eg. parents separated, new baby)	25	3	28	3.3
3. Poor emotional-social adjustment (needs security, not participating, lacks confidence)	199	20	219	25.8
4. Poor tolerance (easily frustrated, gives up easily, poor response to stress and challenge)	19	1	20	2.4
5. Immaturity (poor self-motivation)	124	5	129	15.2
6. Below average ability	59	2	61	7.2
7. Poorly developed language skills (not able to cope in English, actual speech problems)	107	12	119	14.0
8. Short attention span (poor auditory skills, poor application)	98	6	104	12.3
9. Physical or medical problems	12	1	13	1.5
10. Hyperactivity and restlessness	22	3	25	3.0
11. French background (French is mother tongue)	11	1	12	1.4
12. Ethnic language difficulties (learning English)	104	6	110	13.0

three reasons coded for each case. The frequency of occurrence of these reasons when French immersion was advised, when teachers were undecided, and the total number and total percent are presented in Table 4. As can be seen from this table, the reason most frequently cited by teachers when advising French immersion enrolment is the presence of average to high ability and the absence of special problems (eg. coordination or perceptual problems). It is interesting to note that teachers assigned a different priority (lower) to emotional-social adjustment than they did when advising against French immersion. The child's level of maturity was cited with the same frequency as the level of development of language skills. Thus, teachers consider a child's general development in terms of maturity and emotional-social adjustment paramount when advising against French immersion and consider his level of ability to be of greatest importance when making the decision to advise French immersion enrolment.

Teachers' ratings of ability, social maturation and motivation as "Below average," "Average" or "Above average" were compared for the three groups formed on the basis of teachers' recommendations regarding French immersion enrolment. The number and percent of children assigned to each category are presented in Table 5. Chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) indicated

Table 4

Frequency of Occurrence of Nine Categories of Reasons cited by Teachers for Advising French immersion Enrolment

	French immersion advised	Undecided	Total	Percent
1. Positive parental attitudes (towards French immersion)	3		3	0.6
2. Generally supportive home situation	14		14	3.0
3. Good emotional/social adjustment (outgoing, confident, handles stress well)	81	2	83	17.6
4. Good tolerance (persistent)	1		1	0.2
5. Maturity (works independently, desire to learn)	69	1	70	14.8
6. Average to high ability, absence of any special problems	147	26	173	36.6
7. Well-developed language skills	69	1	70	14.8
8. Good attention span (able to concentrate, good listening skills)	50	2	52	11.0
9. Some French background (French spoken at home)	6	1	7	1.5

significant differences on all three variables. One-sample chi-square-tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) were computed for each rating category to determine

Table 5

Chi-square Analyses Comparing the Three Teachers' Enrolment Advice Groups on Teachers' Ratings of Ability, Social Maturation and Motivation

		French immersion Advised	French immersion Not Advtsed	Undecided	Chi^2	df
ABILITY						
Below Average	#	0	107	3	85.83**	2
	%	0.0	20.3	4.9		
Average	#	162	316	42	11.52**	2
	%	44.5	60.0	68.9		
Above average	#	202	104	16	82.96**	2
	%	55.5	19.7	26.2		
Statistical Analysis		Chi^2 = 173.64** (df = 4)				
SOCIAL MATURATION						
Below average	#	25	196	11	82.24**	2
	%	6.8	36.8	18.0		
Average	#	202	297	47	5.32	2
	%	55.3	55.8	77.0		
Above average	#	138	39	3	112.03**	2
	%	37.8	7.3	4.9		
Statistical Analysis		Chi^2 = 199.74** (df = 4)				
MOTIVATION						
Below average	#	3	127	5	81.74**	2
	%	0.8	24.0	8.2		
Average	#	197	339	49	7.45*	2
	%	54.3	64.0	80.3		
Above average	#	163	64	7	99.3**	2
	%	44.9	12.1	11.5		
Statistical analysis		Chi^2 = 189.45** (df = 4)				

*p < .05

**p < .01

significant differences among groups. There were significant differences in the number of "Below average" ratings of ability, social maturation and motivation. The group for whom teachers did not advise French immersion had the highest percentage of "Below average" ratings. There were also significant differences in "Above average" ratings with the group of children for whom French immersion was advised being rated as "Above average" with the greatest frequency. There were significant differences in "Average" ratings of ability and motivation with the highest number occurring in the "Undecided" group, followed by the group for whom French immersion was not advised with the French immersion advised group having the fewest "Average" ratings of ability and motivation.

This pattern of results points to the relative importance of ability, social maturation and motivation in teachers' decisions regarding the advisability of French immersion enrolment. Children for whom French immersion was not advised received more "Below average" ratings of social maturation than of ability which again indicates that teachers give more weight to the level of social maturation than to the level of ability when they advise against French immersion enrolment. This interpretation may also be substantiated by the Undecided group where there were also more "Below average" ratings of social maturation than of

ability.

The results of the Teacher's Ratings will be discussed further in later sections in relation to parents' decisions regarding French immersion enrolment.

Biographical and Background Information Questionnaire

Response Rate to Questionnaire: The cooperation of teachers and parents was evident in the high rate of responses to this questionnaire. Of the 1330 questionnaires distributed to the parents of four-year-old kindergarten pupils, 1017 (76.5%) were returned.

Parents' Kindergarten Enrolment Decisions: Parents' responses to the question regarding their choice of the regular English program or the French immersion program for five-year-old kindergarten were of key interest (see Appendix 2). One thousand and thirteen parents (99.6% of the parents who returned the questionnaire) responded to this question. Four hundred and sixty-eight (46.2%) chose French immersion, 483 (47.7%) chose the regular English program, and 62 (6.1%) were undecided. However, these figures were revised as further information was obtained to confirm parents' decisions to enrol their children in French immersion. As parents and schools were contacted to arrange the Early Identification Project Assessment of 200

children who would be enrolled in French immersion five-year-old kindergarten in September of 1977, it became evident that many parents who had initially indicated the intention to enrol their children in French immersion had changed this decision. Although individual reasons for changes in decisions were not extensively documented, the most common reasons appeared to be parents' awareness of more information about the French immersion program, especially details about location of the program and bussing, and parents' initial mininterpretation that French immersion referred to the core French program. Although parents' decisions regarding enrolment in French immersion could not be confirmed in every case, it was confirmed that in June of 1977, 111 parents who had originally indicated the intention to enrol their children in primary French immersion no longer intended to enrol them in the program and that six parents who were originally undecided had decided against enrolment in the program. The changed figures now indicated that of the 1013 parents who responded to this question, 357 (35.2%) still intended to enrol their children in French immersion, 600 (59.2%) intended to enrol their children in the regular English program, and 56 (5.5%) were undecided.

Parents were asked to indicate reasons for deciding to enrol their children in French immersion or reasons for deciding not to enrol their children in primary French

immersion. The reasons given were classified in several categories and up to three responses were coded for each case. The frequency of responses in each category of reasons given for not enrolling children in French immersion for the English program group and the "Undecided" group are presented in Table 6. It should be noted that parents who initially expressed the intention to enrol their children in French immersion, but who later decided upon the English program, did not indicate reasons for not enrolling their children in French immersion. For the parents initially deciding on the English program and for the "Undecided" group, the most commonly cited reason for their choice was a preference for a solid grounding in English. The fact that the child would require bussing was also an important consideration in this decision (#5-14%). Parents of children for whom English was a second language frequently chose the English program because a third language would be too much for the child (#11-13%). Characteristics of the children were considered by parents in deciding against French immersion and comprised 11% of the reasons given. Factors such as poor language ability (#1), personality problems (#2) and slow adjustment to school (#15) led some parents to decide against French immersion. Thirty-one percent of the reasons for deciding against French immersion enrolment were based upon characteristics of the available school pro-

Table 6

Frequency of Occurrence of Seventeen Categories of Parents' Reasons for Not Enrolling Children in French immersion

Reason for not enrolling child in French immersion	English program group	Undecided group	Total	Total %
1. Language ability generally poor, speech or hearing problems, learning disabilities, short attention span.	25		25	4.25
2. Personality problems (shy, uneven tempered etc.).	6	1	7	1.19
3. Priority for other ethnic education as second language.	8		8	1.36
4. Preference for a solid grounding in English.	130	3	133	22.58
5. Child would require bussing.	73	11	84	14.26
6. French background (child will learn French in the home or already speaks it).	13	1	14	2.38
7. Early educational years more important for learning other skills (e.g., reasoning ability, socialization skills, etc.).	38	1	39	6.62
8. English is international language (business, etc.).	9		9	1.53
9. Non-immersion (core) French is sufficient.	45		45	7.64
10. Too little information on long-term effects of early French immersion.	10	7	17	2.89
11. Child still doesn't speak English (ethnic group), third language would be too much.	74		74	12.53
12. Family situation uncertain (e.g., plans for moving, etc.)	30	3	33	5.60
13. English program is superior in quality of education.	8	4	12	2.04

continued

Table 6 continued

Reason for not enrolling child in French immersion	English program group	Undecided group	Total	Total %
14. Bad experience (social, emotional, scholastic) of older children or friends' children in French immersion.	12		12	2.04
15. Child is still adjusting to school generally (enough demands on him, would have difficulty coping).	29	2	31	5.26
16. Nobody else at home speaks French so no possibility of help at home.	40	2	42	7.13
17. Other (enjoys present school and/or teacher, doesn't want to be separated from brothers, sisters, or friends, etc.).	4		4	0.68

grams rather than upon the child's characteristics. The English program was frequently preferred because parents felt that it was superior in the quality of education (#13) and that it offered a solid grounding in English (#4) and a better opportunity for the development of socialization and other skills important in the early educational years (#7). The French immersion program was sometimes rejected because too little information about its longterm effects was available (#10), because the core French offered in the English program was felt to be sufficient (#9), or because siblings or friends had had a bad experience in French immersion (#14). Home variables influencing this decision included the opportunity to learn French at home (#6), the lack of help in French at home (#16), and the uncertainty of the family's future location (#12). Two reasons given infrequently were concerned with a lack of interest in learning French, i.e. English is the international language of business (#8) and education in another second language is preferred (#3).

In summary, parents tended to decide against the French immersion program because they felt it would not meet desired educational goals, such as a solid grounding in English, the development of socialization, or the learning of English as a second language. Bussing to a French immersion school was a basis for rejection in many cases. Characteristics of the children themselves were less

important and accounted for only 11% of the reasons cited.

The reasons for deciding to enrol children in primary French immersion were classified in 12 categories and up to three responses were coded for each case. Table 7 presents the number of times each reason was cited by parents who intended to enrol their children in French immersion, by parents who were undecided and by parents who indicated the intention to enrol their children in French immersion but later chose the English program. The most frequently cited reason was that French immersion was an opportunity to learn to speak French (#1-38%), followed by the view that younger children learn a second language easily (#2-17%). Increased employment opportunities was also a prevalent reason (#5-14%). The general betterment of education through learning any second language was the fourth most frequent response (#12-12%).

Parents who chose French immersion appeared to be most interested in the goal of English-French bilingualism for their children. It was difficult to determine the reasons for this desire since many responses were vague. However, when parents expanded upon this question, increased employment opportunities and the general betterment of education were cited more frequently than increased understanding of the other cultural group. In the terminology of Gardner and Smythe (1959) an instrumental orientation

Table 7

Frequency of Occurrence of Twelve Categories of Parents' Reasons for Enrolling Children in French immersion

Reason For Enrolment in French immersion	French immersion	Undecided	Initial Yes Later Changed to No	Total	Total %
1. Opportunity to learn to speak French, to have proficiency in two official Canadian languages.	206	12	67	285	37.7
2. Most painless and efficient way to teach a child a language, the younger the better for teaching a child to speak a new language comfortably and well.	103	7	16	126	16.7
3. Very positive attitude of child (interested, eager, enthusiastic).	14	1	6	21	2.8
4. Availability of program in local school (no English Kindergarten).	6	0	1	7	0.92
5. Increase future employment opportunities.	75	5	27	107	14.2
6. Increase understanding of other cultural groups.	37	2	8	47	6.2
7. Family is French Canadian or French is language of one parent.	12	1	7	20	2.6
8. Child enjoys school and is having no problems.	5	0	0	5	0.7
9. Program is a challenge and should help prevent boredom in the second kindergarten year.	17	0	1	18	2.4
10. Communication enrichment (all language skills will be improved).	14	0	1	15	2.0
11. Good experience with French immersion of siblings or friends.	16	0	2	18	2.4
12. General betterment of education (any second language is of value).	73	1	13	87	11.5

was more evident than an integrative orientation on the part of parents desiring that their children learn to speak French. Trites and Price (1977) found that parents of children who were successful in French immersion tended to have a more integrative orientation towards French immersion than parents of children who encountered difficulty in French immersion. This classification of attitudes will be followed carefully as a predictor variable.

Special Characteristics for French immersion:

Parents were asked if they thought that a child needed to have any special characteristics to do well in French immersion. The number and percent of parents in the French immersion enrolment and English program/undecided groups responding in each category are presented in Table 8. A chi-square analysis (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) indicated significant differences in responses to this item. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) were computed for each response category to determine group differences. The results of these tests are included in the extreme right hand columns of Table 8. Parents in these two groups differed significantly in terms of "Yes" responses. Parents of the French immersion group were more inclined to think that children

Table 8

Chi-square Analyses Comparing the Views of Parents of the French immersion and English program/Undecided Groups Regarding Special Characteristics Needed for French immersion

	French immersion		English Program/Undecided			
	#	%	#	%	Chi^2	df
Special characteristics needed for French immersion?						
Yes	161	45.2	238	36.2	4.54*	1
No	174	48.9	364	55.4	1.83	1
Don't Know	21	5.9	55	8.4	2.07	1
Statistical analysis		Chi^2 = 8.48* (df = 2)				

*p < .05

required special characteristics to do well in French immersion.

The various types of special characteristics cited by parents were classified in 11 categories. Three of these categories were characteristics of the child's home environment rather than of the child. The number of parents in each group who cited each of the 11 characteristics are presented in Table 9. This table also presents the total frequency for each category and the percent in terms of the total number of responses recorded. The most frequently cited characteristic was good emotional/social

Table 9

Special Characteristics for French immersion Cited by the French immersion and English program/Undecided Groups

Special characteristics cited:	French immersion	English program/ Undecided	Total Frequency	Percent
1. Good emotional/social adjustment (free of inhibitions, etc.).	38	62	100	19.2
2. High tolerance of stressful situations.	7	10	17	3.3
3. Mature, has desire to learn	47	36	83	16.0
4. Good general ability, no learning disabilities	42	41	83	16.0
5. High to superior ability.	6	25	31	6.0
6. Well-developed language skills; good language aptitude.	33	44	77	14.8
7. Good attention and concentration span (well-developed listening skills).	24	23	47	9.0
8. Good health, no physical handicaps	2	1	3	0.6
9. Positive parental attitudes towards French immersion.	4		13	2.5
10. Supportive and stimulating home situation.	14	11	25	4.8
11. Help in French available at home (exposure to French outside of school).	6	35	41	7.9

adjustment (19.2%). Maturity and a desire to learn (16%), good general ability without learning disabilities (16%) and well-developed language skills in English (15%) were also considered to be important characteristics for success in French immersion.

French immersion enrolment versus English program enrolment: In this section, the French immersion enrolments are compared with a group comprised of English program enrolments plus the "Undecided" group. This latter group will be referred to as the "English program" group throughout this section. The purpose of these comparisons is to investigate the degree of similarity between these groups in terms of the information obtained in the Biographical and Background Information Questionnaire and the Teacher's Ratings. The factors representative of children enrolled in French immersion kindergarten are presented.

Descriptive Information. Age, sex and hand dominance information for the two comparison groups are presented in Table 10. As can be seen from this table, a t-test comparison (SPSS SUBPROGRAM T-TEST, Nie, et al., 1975) failed to reveal any significant age differences. Chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) failed to reveal significant group differences in the sex and handedness distributions in the French immersion and English program groups. There was a slight tendency for a greater number of females to be enrolled in French immersion but the proportions of males and females are fairly equal. Approximately 10% of the children in each group were left-handed. This proportion corresponds to the proportion of left-handers reported in the general popula-

Table 10

Age, Sex and Hand Dominance Comparisons of the French immersion and English Program Groups

		French immersion group	English program group
AGE	$\bar{X}$	4.69	4.69
	SD	0.30	0.31
Statistical analysis		t-prob = 0.923 (df = 1012)	
SEX			
Males	#	169	339
	%	47.3	51.6
Females	#	188	318
	%	52.7	48.4
Statistical analysis		Chi^2 = 1.51 (df = 1)	
HAND DOMINANCE			
Right	#	312	562
	%	87.4	85.7
Left	#	37	75
	%	10.4	11.4
Undetermined	#	8	19
	%	2.2	2.9
Statistical analysis		Chi^2 = 0.69 (df = 2)	

tion (Hardyck and Petrinovich, 1977).

Preschool Experience. The extent of preschool experience in Nursery schools and Day Care centres was assessed. The number and percent of children in each group who attended Nursery school or Day Care centres

half days or full days, or who did not attend preschool, are presented in Table 11. Significant chi-square analyses (SPSS SUBPROGRAM CROSSTABLS, Nie et al., 1975) were followed by one-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) for each category of attendance to determine group differences. The results of these tests are presented in the extreme right hand columns of Table 11. There were significant group differences in terms of the numbers of children not attending Nursery school, those attending Nursery school half days, and those attending Day Care centres full days. More children in the English program group had not attended Nursery school. More children in the French immersion group had attended Nursery school half days and Day Care centres full days. These results indicate that children entering French immersion have had much more preschool experience compared with children entering the regular English program. This finding is consistent with the observations of Lokan and Day (1976) as well as Trites and Price (1977).

The length of half day attendance at Nursery school was approximately 10 months for both groups (t probability = 0.815). However t test comparisons (SPSS SUBPROGRAM T-TEST, Nie et al., 1975) indicated that the French immersion group had spent significantly more months ($\bar{X}$ = 19 months) in full day attendance at Day Care centres compared with the

Table 11

Chi-square Analyses Comparing the French immersion and English program Groups in Terms of Attendance at Nursery School and Day Care Centres

		French immersion group	English program group	Chi^2	df
Nursery school attendance:					
Did not attend	#	194	492	14.48**	1
	%	54.3	74.9		
Attended half days	#	154	149	32.34**	1
	%	43.1	22.7		
Attended full day	#	9	16	0.00	1
	%	2.5	2.4		
Statistical analysis		Chi^2 = 46.84** (df = 2)			
Day Care Centre attendance:					
Did not attend	#	299	603	1.87	1
	%	83.8	91.9		
Attended half day	#	10	11	1.90	1
	%	2.8	1.7		
Attended full day	#	48	42	24.01**	1
	%	13.4	6.4		
Statistical analysis		Chi^2 = 16.05** (df = 2)			

* $p < .05$
** $p < .01$

English program group ($\bar{X}$ = 12 months) (t probability = 0.005). This is further evidence that children entering French immersion have more preschool experience than children entering the English program.

Special Needs or Handicaps. Parents were asked to indicate any special needs or handicaps of their children.

The number and percent of children in each group who have special needs are presented in Table 12. A significant overall chi-square analysis (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) was followed by one-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) for each category to determine group differences. The results of the one-sample chi-square tests are presented in the extreme right hand columns of Table 12. Significant group differences were found for children requiring speech therapy and medication. In both instances, the percent of children with these needs was higher for the English program group. While few parents indicated that their children had any special needs or handicaps, there was a tendency for more needs to be reported for the English program group. Thus, parents appear to be highly sensitive to these characteristics in their children and may consider enrolment in French immersion with caution when special needs are present. The need for speech therapy might lead parents to assume language difficulties and the need for medication might signal difficulties in school as a result of absence for medical reasons.

Socioeconomic Status. Socioeconomic status (SES) was determined by assigning socioeconomic index numbers to the occupations of the parents (Blishen and McRoberts, 1976). If both parents were employed, the father's SES

Table 12

Chi-square Analyses Comparing the French immersion and English program Groups in terms of their Special Needs

		French immersion group	English program group	Chi^2	df
No special needs	#	344	596	0.67	1
	%	96.4	90.9		
Speech therapy	#	6	32	5.73*	1
	%	1.7	4.9		
Hearing aid	#	1	1	0.19	1
	%	0.3	0.2		
Medication	#	1	13	4.98*	1
	%	0.3	2.0		
Hyperactivity	#	0	4	1.33	1
	%	0.0	0.6		
Health factors	#	5	9	0.00	1
	%	1.4	1.4		
Physical handicaps	#	0	1	0.54	1
	%	0.0	0.2		
Statistical analysis		$Chi^2 = 14.81$* (df = 6)			

* $p < .05$
** $p < .01$

index was taken to be the family SES if it was higher than the mother's SES index number. However, if the mother's SES was higher than the father's, the average of these two indices was calculated to determine the family SES. The mean SES index numbers, standard deviations and results of

t-test comparisons (SPSS SUBPROGRAM T-TEST, Nie et al., 1975) of the French immersion and English program groups are presented in Table 13. There were significant differences

Table 13

Means, Standard Deviations and t Probabilities for Comparisons of the French immersion and English Program Groups on SES Variables

	French immersion group		English program group		t-prob
	$\bar{X}$	SD	$\bar{X}$	SD	
SES					
Father	60.0	13.3	52.9	15.3	0.000
Mother	52.2	11.1	49.6	11.7	0.042
Family	60.0	12.6	53.4	14.8	0.000

on all three SES indicators. The SES of fathers, mothers and families of the French immersion group were significantly higher than those of the English program group. The mean SES for fathers and for the family of the French immersion group was in the lower upper class range compared with the upper middle SES range for the English program fathers and families. Mothers of the French immersion program group had a mean SES level in the upper middle class range compared with the lower middle class SES level of the mothers of the English program group.

The SES differences reported above draw attention to an important aspect of school program selection. The French immersion program tends to be the choice of parents from higher SES groups. Thus, children in this program tend to be drawn from higher SES backgrounds and may enjoy more advantaged home backgrounds than children in the regular English program. This question was pursued further.

Advantaged Home Backgrounds. Two questions of the Biographical and Background Information Questionnaire have been used as indications of more or less advantaged homes (Lokan, et al., 1976). Parents were asked to indicate how frequently the child was read to at home on a weekly basis and how many books were in the home. Response categories for the former question ranged from "occasionally" to "almost every night" and from "0 to 10" to "500 or more" for the latter question. The number and percent of responses in each category for the two comparison groups are presented in Table 14. Chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) indicated significant differences on both questions. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) were computed to determine group differences for each response category. There were significant group differences in terms of the frequency of reading to the child at home, with a higher percentage of responses in the "occasionally" category for the English program group

Table 14

Chi-square Analyses Comparing the French immersion and English program Groups in Terms of Reading to the Child and Number of Books in the Home

	French immersion group		English program group			
	#	%	#	%	Chi^2	df
Read to child at home:						
Occasionally	21	6.0	108	17.0	21.12**	1
1x - 2x weekly	36	10.3	74	11.6	0.36	1
Several times per week	89	25.4	174	27.4	0.42	1
Every night	205	58.4	280	44.0	9.20**	1
Statistical analysis			Chi^2 = 31.18** (df = 3)			
Number of books in the home:						
0- 10	6	1.7	41	6.4	10.35**	1
11- 30	14	4.0	50	7.8	5.04*	1
31- 60	31	8.8	76	11.9	2.00	1
61-100	45	12.7	107	16.7	1.90	1
101-200	49	13.8	108	16.8	1.23	1
201-499	103	29.1	146	22.8	3.60	1
500 or more	106	29.9	113	17.6	15.15**	1
Statistical analysis			Chi^2 = 40.98** (df = 6)			

compared to the French immersion group. In addition, the French immersion group were read to "every night" more often than the English program group. This response pattern suggests that parents of children in the French immersion group read to their children more frequently than do parents of the English program group. This may be interpreted as an indication that children who are enrolled in French immer-

sion come from more advantaged homes than children who enter the English program.

Further indications of differences in the advantaged nature of home backgrounds were evident in the significant differences in the number of books in the home. The English program group tended to have the fewest books in the home while the French immersion group tended to have the most books. Again, these findings point to the advantaged home backgrounds of children who are enrolled in French immersion.

Home Language Environment. Parents were asked to indicate the main language spoken in the home and whether or not a second language was spoken. The number and percent of homes in each group in which various languages were spoken, and where an additional language was spoken are presented in Table 15. A significant chi-square analysis (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) of the main languages in the home was followed by one-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) computed for each response category. Significant differences on these tests indicated that English was the main language of a greater percentage of homes in the French immersion group than in the English program group. In addition, a language other than the languages specified on this question was the main language in more homes of the English program group

Table 15

Chi-square Analyses Comparing the French immersion and English program Groups in Terms of Home Language Environment

	French immersion		English program			
	#	%	#	%	Chi^2	df
Main language in home:						
English	342	95.8	551	83.9	3.98*	1
French	2	0.6	12	1.8	2.80	1
Italian	1	0.3	11	1.7	3.38	1
German	3	0.8	5	0.8	0.00	1
Other	9	2.5	78	11.9	23.34**	1
Statistical analysis	$Chi^2 = 33.82^{**}$ (df = 4)					
Additional languages spoken in the home?						
Yes	82	23.0	176	26.8		
No	274	77.0	481	73.2		
Statistical analysis	$Chi^2 = 1.52$ (df = 1)					

than of the French immersion group. Parents are more likely to choose the English program when English will be their child's second language.

A chi-square analysis (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) did not reveal any significant differences in the presence of an additional language in the homes of the two kindergarten enrolment groups.

Parental Attitudes Towards the French Language. Parental attitudes towards speaking and learning to speak French were of interest. The number and percent of mothers and fathers who spoke French are presented in the upper third of Table 16 for the two kindergarten enrolment groups. Chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) indicated significant differences on this variable for both mothers and fathers. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) were computed for each response category. Significantly more mothers and fathers of the French immersion group spoke French compared to parents of the English program group. In addition there were significantly more "No" responses for fathers of the English program group compared to fathers of the French immersion group.

The number and percent of parents who would like to learn to speak French are presented in the middle third of Table 16 for the two comparison groups. Again, overall chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) of the responses of mothers and fathers indicated significant differences. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) indicated significant group differences for various categories of response. When both mothers and fathers of the French immersion and English program groups were considered, more parents of the

Table 16

Chi-square Analyses Comparing the French immersion and English program Group on Questions Assessing Parental Attitudes Towards the French Language

	French immersion group		English program group			
	#	%	#	%	Chi^2	df
Do parents speak French?						
Mother: Yes	86	24.2	99	15.2	10.47**	1
No	270	75.8	552	84.8	2.13	1
Statistical analysis	Chi^2 = 11.70** (df = 1)					
Father: Yes	116	33.3	131	20.6	14.93**	1
No	232	66.7	505	79.4	4.99*	1
Statistical analysis	Chi^2 = 18.73** (df = 1)					
Do parents wish to learn to speak French?						
Mother: Yes	201	79.4	267	52.4	19.47**	1
No	52	20.6	243	47.6	32.33**	1
Statistical analysis	Chi^2 = 51.2** (df = 1)					
Father: Yes	160	75.5	237	52.5	12.60**	1
No	52	24.5	214	47.5	18.83**	1
Statistical analysis	Chi^2 = 30.59** (df = 1)					
Have parents taken a French course?						
Mother: Yes	126	35.6	110	17.4	30.91**	1
No	228	64.4	524	82.6	9.73**	1
Statistical analysis	Chi^2 = 40.59** (df = 1)					
Father: Yes	129	39.0	159	26.3	11.07**	1
No	202	61.0	446	73.7	5.02*	1
Statistical analysis	Chi^2 = 15.59** (df = 1)					

*p < .05

**p < .01

French immersion group wanted to learn to speak French and fewer parents of the French immersion group did not want to learn to speak French.

A third indication of parental attitudes towards speaking French was information regarding the number and percent of parents of each group who have taken French courses (see the bottom third of Table 16). Overall chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) of responses of mothers and fathers were significant. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) were computed for each response category. Significantly more mothers and fathers of the French immersion group have taken French courses compared with parents of the English program group. Greater efforts to learn to speak French may be interpreted to reflect a more positive attitude toward learning to speak French expressed by parents who intend to enrol their children in French immersion.

The pattern of responses to the above three questions suggests that parents who enrol their children in French immersion are themselves more interested in speaking French than parents who choose the English program. It is interesting to note, however, that at least 40% of all parents do express interest in learning to speak French.

Exposure to French. Parents were asked to indicate whether or not their children heard French in the home and in the neighbourhood. The number and percent of responses in each category are presented in Table 17 for the two kindergarten enrolment groups. Chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) were computed. There were no significant differences in exposure to French

Table 17

Chi-square Analyses Comparing the French immersion and English program Groups in terms of Exposure to French

	French immersion group		English program group			
	#	%	#	%	Chi^2	df
Exposure to French						
In the home: Yes	105	29.5	122	18.6	12.06**	1
No	251	70.5	533	81.4	3.50	1
Statistical analysis	$Chi^2 = 15.03$** (df = 1)					
In the neighbourhood: Yes	123	34.7	214	33.0		
No	231	65.3	435	67.0		
Statistical analysis	$Chi^2 = 0.25$ (df = 1)					

*p < .05

**p < .01

in the neighbourhood. However, there were significant group differences in exposure to French in the home. Group differences on this measure were assessed in one-sample chi-square

analyses (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977). Significantly more children in the French immersion group were exposed to French in the home compared with children in the English program group.

Siblings in French immersion. The experience of siblings in French immersion programs was examined. The number and percent of siblings who were enrolled in French immersion, and who were not enrolled, are presented in Table 18 for the two kindergarten enrolment groups. A significant overall chi-square analysis (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) was followed by one-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) computed for the two response categories. Significantly more children in the French immersion group had siblings who had also been enrolled in French immersion programs.

The various types of French immersion programs attended by siblings were determined. Ninety-four percent of the siblings of the French immersion group and 82% of the siblings of the English program group had been enrolled in primary French immersion programs.

The number and percent of siblings of the two groups who experienced difficulty in French immersion are also presented in Table 18. An overall chi-square analysis (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) of responses

Table 18

Chi-square Analyses Comparing the French immersion and English program Groups in Terms of Siblings in French immersion

	French immersion group		English program group			
	#	%	#	%	Chi^2	df
Siblings enrolled in French immersion?						
Yes	111	31.2	58	8.9	67.93**	1
No	245	68.8	597	91.9	13.55**	1
Statistical analysis	Chi^2=80.97** (df=1)					
Siblings - difficulty in French immersion?						
Yes	17	15.5	20	34.5	5.81*	1
No	93	84.5	38	65.5	1.66	1
Statistical analysis	Chi^2= 6.94** (df=1)					

* $p < .05$

** $p < .01$

was significant. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) indicated that significantly more siblings of the English program group sample had experienced difficulty in French immersion. Thus, more families of the French immersion group had siblings enrolled in French immersion and more of these children had experienced success in French immersion compared with the English program group.

It is likely that more frequent experiences of success in French immersion would promote a more positive attitude towards the French immersion program for the French immersion group.

Teacher's Ratings. Children in the French immersion and English program groups were compared in terms of their ratings by teachers as "Below average," "Average" or "Above average"in terms of ability, social maturation and motivation. The number and percent of children in each group rated in each category are presented in Table 19. Teachers' responses regarding the child's likelihood of experiencing difficulty in school are also presented in Table 19. Overall chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) indicated significant differences on the four rating scales. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) were computed for each response category to determine group differences.

In terms of ability, social maturation and motivation, significantly more children in the English program group received "Below average" ratings compared to the French immersion group. In addition, significantly more children in the French immersion group received "Above average" ratings of ability compared to the English program group. This pattern of responses suggests that parents are sensitive to these characteristics in their children such that a child

Table 19

Chi-square Analyses Comparing the French immersion and English program Groups on Teacher Ratings of Ability, Social Maturation, Motivation and School Difficulty

	French immersion group		English program group			
	#	%	#	%	Chi^2	df
ABILITY						
Below average	17	4.8	90	14.1	18.00**	1
Average	177	50.4	342	53.6	0.41	1
Above average	157	44.7	206	32.3	9.20**	1
Statistical analysis	$Chi^2 = 27.94$** (df = 2)					
SOCIAL MATURATION						
Below average	68	19.2	174	27.2	5.85*	1
Average	207	58.5	355	55.5	0.38	1
Above average	79	22.3	111	17.3	2.77	1
Statistical analysis	$Chi^2 = 9.27$** (df = 2)					
MOTIVATION						
Below average	33	9.4	103	16.1	7.25**	1
Average	217	62.0	379	59.3	0.26	1
Above average	100	28.6	157	24.6	1.38	1
Statistical analysis	$Chi^2 = 9.03$* (df = 2)					
Difficulty in school?						
No	263	75.6	439	69.6	1.05	1
Likely	67	19.3	173	27.4	5.90*	1
Possible	18	5.2	19	3.0	2.96	1
Statistical analysis	$Chi^2 = 10.00$** (df = 2)					

* $p < .05$

** $p < .01$

who is "Below average" in ability, social maturation and motivation is more likely to be enrolled in the English program.

In terms of teachers' predictions of difficulty in school, significantly more children in the English program group were rated as "Likely" to have difficulty in school compared with the French immersion group.

Teachers' ratings of these children indicate some interesting differences between the children who enter these two school programs. The English program tends to receive more children who are rated by teachers as "Below average" in ability, fewer children who are rated as "Above average" in ability and more children who are likely to encounter difficulty in school. The French immersion program thus appears to draw the most capable students.

Agreement Between Parents and Teachers with regard to Enrolment in French immersion: The decisions of parents and the advice of teachers with regard to enrolment in French immersion were available for 722 children. The degree to which parents and teachers agreed upon the choice of program may be determined from Table 20 which presents the number and percent of cases (based on all 722 cases) for each possible combination of responses of parents and teachers. The underlined figures indicate that parents and teachers agreed that a child should be enrolled in French immersion

in 21% of the cases, that a child should not be enrolled in 37% of the cases and both were undecided in 0.1% of the cases. Thus, parents and teachers came to the same decision for 58.5% of the children.

Table 20

Agreement between Parents and Teachers with Regard to French immersion Enrolment

Parents' decision re French immersion enrolment:	Teacher's advice re enrolment in French immersion					
	Yes		No		Undecided	
	#	%	#	%	#	%
Yes	154	21.3	87	12.0	13	1.8
No	123	17.0	268	37.1	35	4.9
Undecided	19	2.6	22	3.0	1	0.1

The 12% of decisions where teachers disagreed with the parents' choice of the French immersion program were of special interest. The parental decisions in the category "No" include the cases in which parents answered "Yes" on the questionnaire but later information confirmed that the child would be enrolled in the English program. Teachers advised French immersion enrolment for 50 (27.6%)

of these children and were undecided with regard to 29 (16%). However, teachers advised against French immersion enrolment for 102 (56.4%) of these children. It may be that the teacher's opinion influenced some of the changes in parents' decisions. When the original responses of parents were analyzed, the disagreement between parents and teachers was much higher - 26.1% of the 722 cases.

Four groups were formed on the basis of agreement and disagreement between parents and teachers. Cases in which either parents or teachers were undecided were ommitted. Thus, two groups were composed of cases in which parents chose French immersion enrolment, with one group where teachers agreed (Agree Yes) and the other where teachers disagreed (Disagree Yes). The other groups involved parental decisions against French immersion with teachers agreeing (Agree No) or disagreeing (Disagree No).

Descriptive Information. Descriptive information including age, sex and hand dominance are presented in Table 21 for the four groups formed on the basis of agreement between parents and teachers with regard to French immersion enrolment. Significant age differences were found in a oneway analysis of variance (SPSS SUBPROGRAM ONEWAY, Nie et al., 1975) followed by Newman-Keuls multiple comparisons.

Table 21

Age, Sex and Hand Dominance Comparisons of the Four Parent-Teacher Agreement Groups

	AGE			SEX				HAND DOMINANCE					
				Males		Females		Right		Left		Undetermined	
	$\bar{X}$	SD	Newman Keuls	#	%	#	%	#	%	#	%	#	%
PARENTS: YES to French immersion													
1) Teachers agree	4.71	0.3	2,3	63	40.9	91	59.1	137	89.0	13	8.4	4	2.6
2) Teachers disagree	4.65	0.3		48	55.2	39	44.8	77	88.5	10	11.5	0	0.0
PARENTS: NO to French immersion													
3) Teachers agree	4.67	0.3		144	53.7	124	46.3	225	84.3	31	11.6	11	4.1
4) Teachers disagree	4.75	0.3	1,2,3	55	44.7	68	55.3	100	81.3	21	17.1	2	1.6
One-sample Chi^2 analysis				$Chi^2 = 4.70$ (df = 3)		$Chi^2 = 4.61$ (df = 3)							
Overall Statistical analysis	F Ratio = 2.729* (df = 3, 628)			$Chi^2 = 8.66$* (df = 3)				$Chi^2 = 9.84$ (df = 6)					

* $p < .05$ **$p < .01$

When parents had decided on French immersion enrolment (groups 1 and 2), the teachers disagreed with this decision when the children were significantly younger than the group for whom teachers advised French immersion. Even when parents had decided against French immersion (groups 3 and 4), the teachers advised French immersion enrolment for a group of children that was significantly older than all other groups and agreed that the younger group should not be enrolled. Thus, when teachers disagreed with parents' decisions, they advised against French immersion for the younger group and advised it for the older group. Teachers appeared to be sensitive to the age of children in making their recommendations and were more likely to recommend French immersion for an older child.

An overall chi-square analysis (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) indicated significant sex differences. However, one-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) computed to determine group differences in sex distribution were not significant. However, there was a trend evident in that teachers recommended French immersion more frequently for girls than for boys (groups 1 and 4).

No significant differences in hand dominance were found in a chi-square analysis (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975). The majority of children in each group

were right-handers.

Special Needs. A chi-square analysis (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) of these four groups in terms of the "Special Needs" of the children was significant (see Table 22). One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) indicated significant group differences in the percent of children requiring speech therapy.

The need for speech therapy appears to be a factor related to teachers' agreement with parents French immersion enrolment decisions. Teachers agreed that the group of children requiring the most speech therapy (group 3) should not be enrolled in French immersion, and that a group with few children requiring speech therapy (group 1) should be enrolled. When teachers disagreed with parents' decisions, the group for whom they advised French immersion (group 4) had fewer children requiring speech therapy than the group for whom teachers advised against French immersion enrolment (group 2).

Preschool Experience. The extent of preschool experience of the four parent-teacher agreement groups was compared in chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975). The number and percent of children in each category of Day Care centre and Nursery school attendance are presented in Table 23 for these four groups. There were significant differences for both types of

Table 22

Chi-square Analyses Comparing the Four Parent-Teacher Agreement Groups in Terms of their Special Needs

	PARENTS: YES to French Immersion				PARENTS: NO to French Immersion					
	1) Teachers agree		2) Teachers disagree		3) Teachers agree		4) Teachers disagree			
	#	%	#	%	#	%	#	%	Chi^2	df
No special needs	146	94.8	83	95.4	233	86.9	119	96.7	0.94	3
Speech therapy	2	1.3	3	3.4	20	7.5	1	0.8	13.48**	3
Hearing aid	0	0.0	1	1.1	1	0.4	0	0.0	1.00	3
Medication	1	0.6	0	0.0	5	1.9	1	0.8	2.80	3
Hyperactivity	0	0.0	0	0.0	3	1.1	0	0.0	6.00	3
Health factors	5	3.2	0	0.0	5	1.9	2	1.6	3.30	3
Physical handicaps	0	0.0	0	0.0	1	0.4	0	0.0	0.00	3
Statistical analysis	$Chi^2 = 29.07^*$ (df = 18)									

*p < .05

**p < .01

Table 23

Chi-square Analyses Comparing the Four Parent-Teacher Agreement Groups in terms of Attendance at Nursery School and Day Care Centres

		PARENTS: YES to French Immersion		PARENTS: NO to French Immersion			
Day Care Centres		1) Teachers agree	2) Teachers disagree	3) Teachers agree	4) Teachers disagree	Chi^2	df
Did not attend	#	122	74	249	110	2.06	3
	%	79.2	85.1	92.9	89.4		
Attended half days	#	5	3	5	3	1.32	3
	%	3.2	3.4	1.9	2.4		
Attended full days	#	27	10	14	10	16.0**	3
	%	17.5	11.5	5.2	8.1		
Statistical analysis		Chi^2 = 19.23** (df = 6)					
Nursery School							
Did not attend	#	84	57	206	80	7.48	3
	%	54.5	65.5	76.9	65.0		
Attended half days	#	67	27	57	38	16.27**	3
	%	43.5	31.0	21.3	30.9		
Attended full days	#	3	3	5	5	2.66	3
	%	1.9	3.4	1.9	4.1		
Statistical analysis		Chi^2 = 26.86** (df = 6)					

* $p < .05$ **$p < .01$

preschool experience. Further one-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) indicated significant group differences in full day attendance at Day Care centres and in half day attendance at Nursery schools. The groups of children that parents and teachers agreed should be enrolled in French immersion (group 1) had the most preschool experience in terms of half day attendance at Nursery school and full day attendance at Day Care centres. In addition, the children for whom parents and teachers agreed French immersion enrolment was not desirable (group 3), had had the least preschool experience. However, when teachers disagreed with parents decisions the basis for this disagreement did not appear to be related to differences in preschool experience. Teachers advised French immersion for a group of children with less Day Care centre experience and similar Nursery school experience (group 4) compared to a group for whom they advised against French immersion (group 2).

These results suggest that both parents and teachers agree that a child's preschool experience is a factor to be considered in choosing French immersion for that child. However, it may be that the parents' decision to involve the child in a preschool program may have been influenced by family characteristics or characteristics of the child that also influence the parents' decision to enrol the child

in French immersion.

Socioeconomic Status. The socioeconomic indices for the father, mother and family of the four parent-teacher agreement groups were compared in oneway analyses of variance (SPSS SUBPROGRAM ONEWAY, Nie et al., 1975). The means, standard deviations and results of Newman-Keuls multiple comparisons are presented for these analyses in Table 24. Significant differences were found for all three measures. The highest SES ratings were obtained by the group for whom parents and teachers agreed upon French immersion enrolment (group 1). The lowest SES ratings were obtained by the group for whom teachers and parents agreed upon English program enrolment (group 3). When teachers disagreed with parents' enrolment decisions (groups 2 and 4), only the mother's SES was found to differ significantly. Teachers advised French immersion for the group with the higher SES for mothers (group 4) and advised against French immersion for the lower SES group (group 2). Although teachers tended to advise French immersion for children from higher SES backgrounds, they still disagreed with French immersion enrolment for some children from fairly high SES backgrounds (group 2). Thus, SES does not appear to be a consistent factor related to teachers' disagreement with parental decisions.

Table 24

Means, Standard Deviations, F Ratios and the Results of Newman-Keuls Comparisons of the Four Parent-Teacher Agreement Groups on SES Variables

	PARENTS: YES to French immersion						PARENTS: NO to French immersion					
	1) Teachers Agree			2) Teachers Disagree			3) Teachers Agree			4) Teachers Disagree		
SES	$\bar{X}$	S.D.	Newman[1] Keuls	$\bar{X}$	S.D.	Newman Keuls	$\bar{X}$	S.D.	Newman Keuls	$\bar{X}$	S.D.	Newman Keuls
Father	59.76	13.02	3,4	58.16	13.11	3	51.71	14.98		56.61	14.47	3
Statistical analysis	F-Ratio = 11.155** (df = 3,568)											
Mother	54.57	10.20	2,3,4	47.69	10.14		47.82	11.15		54.02	10.99	2,3
Statistical analysis	F-Ratio = 6.515** (df = 3,202)											
Family	60.00	12.33	2,3,4	58.37	12.14	3	52.10	14.60		56.83	14.02	3
Statistical analysis	F-Ratio = 11.961** (df = 3,588)											

[1]Results of Newman-Keuls tests: list the number(s) of the group(s) with scores significantly lower than the score of the designated group.

*p < .05

**p < .01

Home Language Environment. The number and percent of homes in which various languages are the main language are presented for each group in Table 25. A significant chi-square (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) was followed by one-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) for each response category. There were significant group differences in the percent of homes where "Other" languages were spoken as the main language. "Other" languages were least often the main language category for children who parents and teachers agreed should be enrolled in French immersion (group 1). Children who should not be enrolled in French immersion as judged by both parents and teachers (group 3) had the highest frequency of homes with "Other" main languages. When teachers disagreed with parents' decisions, fewer "Other" languages were the main home languages of the group for whom teachers advised French immersion enrolment (group 4) compared with the group for whom teachers did not advise French immersion (group 2). Thus, some teachers may view the presence of main home languages other than English as a factor weighing against the advisability of French immersion enrolment.

There were also significant chi-square differences (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) in the number of homes in which an additional language was spoken (see

Table 25

Chi-square Analyses Comparing the Four Parent-Teacher Agreement Groups in Terms of Home Language Environment

	PARENTS: YES to French Immersion				PARENTS: NO to French Immersion					
	1) Teachers agree		2) Teachers disagree		3) Teachers agree		4) Teachers disagree		Chi^2	df
Main language in the home:	#	%	#	%	#	%	#	%		
English	150	97.4	78	89.7	213	79.5	113	91.9	4.27	3
French	2	1.3	0	0.0	6	2.2	3	2.4	2.03	3
Italian	0	0.0	1	1.1	5	1.9	1	0.8	3.33	3
German	1	0.6	2	2.3	2	0.7	0	0.0	2.00	3
Other	1	0.6	6	6.9	42	15.7	6	4.9	28.64**	3
Statistical analysis			Chi^2 = 41.96** (df = 12)							
Additional language in the home?										
Yes	27	17.5	32	36.8	87	32.5	28	22.8	11.37*	3
No	127	82.5	55	63.2	181	67.5	95	77.2	4.73	3
Statistical analysis			Chi^2 = 16.12** (df = 3)							

* $p < .05$

** $p < .01$

Table 25). One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) indicated significant group differences on this variable.

Again, when teachers disagreed with parents' enrolment decisions, the group for whom teachers advised French immersion (group 4) had fewer homes in which an additional language was spoken than the group for whom teachers advised against French immersion (group 2). This is further evidence that some teachers consider the home language environments of children as an important factor related to the advisability of French immersion enrolment. It was reported in an earlier section that teachers cited the presence of language backgrounds other than English as a reason for not advising French immersion enrolment.

Parental Attitudes Towards the French Language. Significant overall chi-quare analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) were found for the responses of both fathers and mothers to questions related to their ability to speak French, their desire to learn to speak French and their efforts to take French courses. The number and percent of responses in each response category are presented in Table 26 for the four parent-teacher agreement groups. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) were computed for each response category to determine group differences. In terms of the

TABLE 26

Chi-square Analyses Comparing the Four Parent-Teacher Agreement Groups on Questions Assessing Parental Attitudes Towards the French Language

	PARENTS: YES to French Immersion				PARENTS: NO to French Immersion					
	1) Teachers agree		2) Teachers disagree		3) Teachers agree		4) Teachers disagree		Chi^2	df
Do parents speak French?	#	%	#	%	#	%	#	%		
Mother: Yes	42	27.3	21	24.1	40	15.0	27	22.0	7.81*	3
No	112	72.7	66	75.9	226	85.0	96	78.0	2.31	3
Statistical analysis			Chi^2 = 10.01* (df = 3)							
Father: Yes	51	33.8	26	30.2	51	20.2	32	26.2	7.16	3
No	100	66.2	60	69.8	201	79.8	90	73.8	2.64	3
Statistical analysis			Chi^2 = 9.84* (df = 3)							
Do parents wish to learn to speak French?										
Mother: Yes	86	59.7	43	51.8	107	42.8	49	43.4	6.35	3
No	17	11.8	19	22.9	103	41.2	37	32.7	28.79**	3
N/A	41	28.5	21	25.3	40	16.0	27	23.9	7.45	3
Statistical analysis			Chi^2 = 41.88** (df = 6)							
Father: Yes	66	47.5	40	47.6	85	36.8	52	46.8	3.86	3
No	22	15.8	18	21.4	95	41.1	27	24.3	23.12**	3
N/A	51	36.7	26	31.0	51	22.1	32	28.8	7.30	3
Statistical analysis			Chi^2 = 33.11** (df = 6)							
Have parents taken French courses?										
Mother: Yes	69	44.8	22	25.6	41	15.7	26	21.8	3[illegible]**	3
No	85	55.2	64	74.4	214	82.0	93	78.2	9.[illegible]*	3
N/A	0	0.0	0	0.0	6	2.3	0	0.0	6.0	3
Statistical analysis			Chi^2 = 51.15** (df = 6)							
Father: Yes	57	38.5	27	32.5	57	23.5	45	37.8	8.71*	3
No	89	60.1	55	66.3	179	73.7	72	60.5	3.43	3
N/A	2	1.4	1	1.2	7	2.9	2	1.7	1.63	3
Statistical analysis			Chi^2 = 13.84* (df = 6)							

*p < .05

**p < .01

ability of parents to speak French, there were significant group differences among mothers. Group differences among fathers did not reach significance but they followed a trend similar to that found among mothers. When teachers agreed with parents' enrolment decisions, the French immersion enrolment group (group 1) had the highest percentage of mothers who spoke French and the English program enrolment group (group 3) had the lowest percentage. However, teachers' disagreement with parents' decisions did not appear to be dependent upon a parent's ability to speak French. Similar percentages of mothers spoke French for the groups in which teachers disagreed with parents and advised French immersion (group 4) or advised against it (group 2).

Significant group differences were found in the number of parents who did not wish to learn to speak French. The highest percentages of both mothers and fathers who did not wish to learn to speak French were found in the group which parents and teachers agree should not be enrolled in French immersion (group 3). When teachers disagreed with the parents' decisions to enrol the children in the English program (group 4), this group had fewer parents who did not wish to learn to speak English in contrast to the group for whom teachers also recommend the English program (group 3). When teachers disagreed with parents' decisions to enrol the

children in French immersion (group 2), this group had a greater percentage of mothers and fathers who did not wish to learn to speak French in contrast to the group to be enrolled in French immersion with the agreement of parents and teachers (group 1) which had the lowest percentage of parents not wishing to learn to speak French. However, for the groups where teachers disagreed with parents' decision, the group for whom they advised French immersion (group 4) had more parents not wishing to learn French than the group for whom French immersion was not advised (group 2). Thus, disagreement between parents and teachers did not occur on the basis of parental attitudes towards wishing to learn to speak French.

Parents' efforts to learn French through courses differed significantly among the four groups. More mothers and fathers of the group where teachers and parents agreed upon French immersion enrolment (group 1) had taken French courses compared to all other groups. The fewest percentages of mothers and fathers taking French courses were found in the group where both parents and teachers agreed upon English program enrolment (group 3). More mothers had taken French courses in the group for whom teachers disagreed with parents' decisions to enrol children in French immersion (group 2) compared to the group where teachers recommended French immersion even though parents

chose the English program (group 4). However, this relationship was reversed for the fathers. Teachers advised French immersion when more fathers had taken French courses (group 4) and they advised against French immersion when fewer fathers had taken French courses (group 2).

The results of these questions assessing parental attitudes towards French do not form a consistent pattern that would suggest a basis for disagreement between parents and teachers related to parental attitudes towards speaking and learning to speak French.

Exposure to French. A chi-square analysis (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) of responses to the question asking if the child heard French spoken in the home was significant. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) indicated that there were significant group differences among the four parent-teacher agreement groups in terms of the percent of homes where French was spoken. The results of these analyses are presented in Table 27. Parents and teachers agreed upon French immersion enrolment (group 1) for the group where French was most often spoken in the home and they agreed upon English program enrolment (group 3) for the group with the least exposure to French in the home. However, when teachers disagreed with parents' kindergarten enrolment decisions, the group for which they advised French immersion

TABLE 27

Chi-Square Analyses Comparing the Four Parent-Teachers Agreement Groups in Terms of their Exposure to French

	PARENTS: YES to French Immersion				PARENTS: NO to French Immersion					
	1) Teachers agree		2) Teachers disagree		3) Teachers agree		4) Teachers disagree		Chi^2	df
French in the home	#	%	#	%	#	%	#	%		
Yes	48	31.2	19	22.1	43	16.1	33	26.8	11.15**	3
No	106	68.8	67	77.9	224	83.9	90	73.2	3.21	3
Statistical analysis	$Chi^2 = 14.13^{**}$ (df = 3)									

*p < .05

**p < .01

(group 4) tended to hear French spoken in the home more often than the group for which they advised against French immersion (group 3). These results suggest that teachers may consider exposure to French in the home to be an important factor in advising French immersion enrolment.

There were no significant differences in the responses to the question concerned with French spoken in the neighbourhood ($Chi^2 = 1.70$, $df = 3$, $p > .05$).

Advantaged Home Background. The questions regarding the frequency of reading to the child at home and the number of books in the home were interpreted as indications of advantaged home backgrounds, as was discussed in an earlier section. The number and percent of responses in each category are presented in Table 28 for the four parent-teacher agreement groups. Significant chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) were followed by one-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977). These tests indicated significant group differences in reading to the children "occasionally" and "every night." Teachers tended to advise French immersion (groups 1 and 4), even when parents had decided against it (group 4), when the children came from relatively more advantaged homes, i.e. they were read to every night. In contrast, teachers advised against French immersion enrolment when fewer parents read to their children every night

Table 28

Chi-Square Analyses Comparing the Four Parent-Teacher Agreement Groups in Terms of Reading to the Child and Number of Books in the Home

	PARENTS: YES to French Immersion				PARENTS: NO to French Immersion					
	Teachers agree (1)		Teachers disagree (2)		Teachers agree (3)		Teachers disagree (4)		Chi^2	df
Read to child at home:	#	%	#	%	#	%	#	%		
Occasionally	4	2.7	10	11.6	54	21.2	14	11.5	25.14**	3
1x - 2x weekly	12	8.1	8	9.3	33	12.9	12	9.8	2.52	3
Several times weekly	31	20.8	31	36.0	65	25.5	29	23.8	5.10	3
Every night	102	68.5	37	43.0	103	40.4	67	54.9	15.42**	3
Statistical analysis	$Chi^2 = 48.53^{**}$ (df = 9)									
Number of books in the home:										
0- 10	0	0.0	4	4.7	22	8.4	0	0.0	21.00**	3
11- 30	7	4.5	2	2.3	23	8.8	6	4.9	5.28	3
31- 60	9	5.8	13	15.1	40	15.3	11	9.0	8.66*	3
61-100	21	13.6	10	11.6	57	21.8	13	10.7	9.59*	3
101-200	27	17.5	11	12.8	38	14.5	28	23.0	4.70	3
201-499	41	26.6	27	31.4	45	17.2	33	27.0	7.89*	3
500-more	49	31.8	19	22.1	37	14.1	31	25.4	14.33**	3
Statistical analysis	$Chi^2 = 74.26^{**}$ (df = 18)									

*p < .05

**p < .01

(groups 2 and 3). This aspect of the child's home background appears to be related to teachers' advice regarding French immersion enrolment. French immersion enrolment is advised for children from more advantaged backgrounds determined by the frequency with which parents read to their children.

There were many significant differences with regard to the number of books in the home. However, there was no consistent pattern that would suggest that teachers' disagreement with parents regarding French immersion enrolment was related to the number of books in the home.

Siblings in French immersion. The results of significant chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) and one-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) are presented in Table 29 for the questions concerned with siblings' involvement in French immersion. The group for whom parents and teachers agreed upon French immersion enrolment (group 1) had the greatest percentage of siblings in French immersion programs while the group for whom parents and teachers agreed upon English program enrolment (group 3) had the lowest percentage. However, teachers' disagreement with parents' decisions was not related to the number of children with siblings in French immersion since the percentages were similar for these two groups (groups 2 and 4). A similar

Table 29

Chi-square Analyses Comparing the Four Parent-Teacher Agreement Groups in Terms of Siblings in French immersion

	PARENTS: YES to French immersion				PARENTS: NO to French immersion					
	Teachers agree 1)		Teachers disagree 2)		Teachers agree 3)		Teachers disagree 4)		Chi^2	df
Siblings enrolled in French immersion?	#	%	#	%	#	%	#	%		
Yes	49	31.8	14	16.3	21	7.8	16	13.1	37.77**	3
No	105	68.2	72	83.7	247	92.2	106	86.9	6.86	3
Statistical analysis	$Chi^2 = 42.99^{**}$ (df = 3)									
Siblings - difficulty in French immersion?										
Yes	8	5.2	2	2.3	9	3.4	3	2.5	2.23	3
No	41	26.6	12	14.0	12	4.5	13	10.7	39.20**	3
N/A	105	68.2	72	83.7	247	92.2	106	86.9	6.86	3
Statistical analysis	$Chi^2 = 48.04^{**}$ (df = 6)									

*p < .05

**p < .01

pattern of results was found for the significant group differences in terms of the percent of siblings who had not experienced difficulty in French immersion. When the percentages are calculated on the basis of the number of siblings in French immersion for each group, similar percentages of siblings had not experienced difficulty when teachers disagreed with parents' decisions to enrol children in French immersion (group 2), and with their decisions to enrol children in the English program (group 4) (86% and 81%, respectively, had not experienced difficulty in French immersion). Thus, the experience of siblings in French immersion is not related to teachers' disagreement with parents' kindergarten enrolment decisions.

Teachers' Ratings. Teachers' ratings of ability, social maturation and motivation provide indications of some basis for teachers' disagreement with parents' kindergarten enrolment decisions. The number and percent of children in each group receiving "Below average," "Average" and "Above average" ratings on these scales are presented in Table 30. Chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) indicated significant differences on the three scales. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) were computed for each rating category to determine group differences. When the group of children whom parents intended to enrol in French immersion were divided

Table 30

Chi-square Analyses Comparing the Four Parent-Teacher Agreement Groups on Teacher Ratings of Ability, Social Maturation, Motivation and School Difficulty

	PARENTS: YES to French Immersion				PARENTS: NO to French Immersion					
	(1) Teachers agree		(2) Teachers disagree		(3) Teachers agree		(4) Teachers disagree		Chi^2	df
ABILITY	#	%	#	%	#	%	#	%		
Below average	0	0.0	13	15.1	62	23.3	0	0.0	62.03**	3
Average	66	43.1	50	58.1	152	57.1	44	35.8	10.97*	3
Above average	87	56.9	23	26.7	52	19.5	79	64.2	60.84**	3
Statistical analysis			Chi^2 = 135.43** (df = 6)							
SOCIAL MATURATION										
Below average	13	8.4	29	33.3	105	39.2	4	3.3	67.79**	3
Average	86	55.8	50	57.5	149	55.6	64	52.0	0.40	3
Above average	55	35.7	8	9.2	14	5.2	55	44.7	85.94**	3
Statistical analysis			Chi^2 = 153.92** (df = 6)							
MOTIVATION										
Below average	1	0.7	14	16.1	63	23.6	1	0.8	56.62**	3
Average	88	57.9	61	70.1	173	64.8	54	43.9	7.78	3
Above average	63	41.4	12	13.8	31	11.6	68	55.3	75.49**	3
Statistical analysis			Chi^2 = 140.65** (df = 6)							
SCHOOL DIFFICULTY										
Likely school difficulty	7	4.6	38	44.2	116	44.3	4	3.3	83.58**	3
No school difficulty	145	94.8	41	47.7	136	51.9	117	96.7	42.60**	3
Possible school difficulty	1	0.7	7	8.1	10	3.8	0	0.0	13.00**	3
Statistical analysis			Chi^2 = 152.42** (df = 6)							

*p < .05

**p < .01

into a group where teachers agreed with this decision (group 1) and a group where teachers disagreed (group 2), the disagreement group had a greater percentage of "Below average" ratings and a lower percentage of "Above average" ratings of ability, social maturation and motivation. Similarly for the English program enrolments, teachers agreed with this decision (group 3) for a group that had more "Below average" ratings and fewer "Above average" ratings than the group (group 4) for whom teachers advised French immersion despite the parents' choice of the English program. For the two groups where teachers disagreed with parents (groups 2 and 4), teachers advised French immersion for the group with fewer "Below average" ratings and more "Above average" ratings.

Teachers' predictions of difficulty in school followed a similar pattern. Teachers predicted difficulty in school more frequently for more children in the groups for whom they advised against French immersion enrolment (groups 2 and 3), whether this was in agreement or disagreement with parents' decisions. Similarly, the highest percentages of children not expected to experience difficulty in school were found in the two groups for whom teachers advised French immersion enrolment (groups 1 and 4).

The results of the teachers' ratings indicate that teachers are most likely to disagree with parents' decisions

to enrol children in French immersion if these children are below average in terms of ability, social maturation or motivation, or if these children are expected to encounter difficulty in school. As a corollary statement, teachers are more likely to agree with parents' choice of the English program if the children are average to above average in ability, social maturation and motivation and if they are not expected to encounter difficulty in school.

Summary of Questionnaire Data

The response rates for the Teacher's Ratings and Biographical and Background Information Questionnaires were high. This high return rate from 51 of the 53 elementary schools of the Ottawa Board of Education ensures that the information was gathered from a good representation of four-year-old children throughout the Ottawa Board of Education.

Teacher's Ratings. Teacher's Ratings provided information about the factors which four-year-old kindergarten teachers considered important in predicting difficulty in school and in the selection of a school program. School difficulty was predicted for 26% of 1253 four-year-old kindergarten children. Difficulty in school was considered to be possible for another 4% of the children. The frequency with which teachers cited various reasons for school difficulty indicated that immaturity was the most frequent

basis for predicting school difficulty. This was followed by language difficulties, emotional or social maladjustment and concentration difficulties. The tendency for teachers to consider a child's level of maturity and social-emotional adjustment as frequently as language factors and more frequently than the level of ability suggests that the child's adjustment to school is a principle concern among teachers of four-year-old kindergarten children. The pattern of results for teachers' ratings of ability, social maturation and motivation indicated that teachers considered children who were below average on these factors to be at a greater risk for school difficulty than children who were above average. It is interesting to note that teachers tended to assign more below average ratings on the social maturation and motivation scales than on the ability scale for children expected to encounter difficulty in school. This again suggests that teachers attend more to the social maturation and motivation of a child than to his ability level when predicting difficulty in school. The children for whom difficulty in school was considered a strong possibility tended to receive more below average ratings in terms of social maturation. This finding also indicates that teachers are attentive to the importance of social maturity to success in school.

The factors which teachers considered to be important for success in French immersion were investigated by comparing the children for whom teachers advised French immersion to the children for whom they did not advise French immersion and to the children about whom teachers were undecided. Nine hundred and fifty-eight four-year-old kindergarten children were involved in these comparisons. When teachers felt that French immersion enrolment was not advisable, they did so most frequently on the basis of poor emotional-social adjustment, followed by immaturity, poorly developed language skills, ethnic language difficulties and short attention span. Thus, a child's general development in social-emotional and language areas was emphasized more than ability when French immersion was not considered advisable. However, when teachers advised French immersion enrolment, average to high ability and the absence of special problems was the most frequently cited reason in support of this decision. Good emotional-social adjustment was also an important factor, followed by maturity and language skills. Again, while teachers placed emphasis upon ability levels when advising French immersion enrolment, they were also concerned with the child's general development in terms of social-emotional adjustment.

Teachers' ratings of ability, social maturation and motivation for the three groups formed on the basis

of teachers' advice regarding French immersion enrolment provided information about the relative importance of these factors in teachers' decisions. Teachers tended to advise French immersion enrolment for children with average to above average ratings on all three scales. These children obtained above average ratings in ability with the greatest frequency which suggests that teachers give the most weight to high ability levels when they advise French immersion enrolment. In contrast, when French immersion was not advised, children tended to obtain below average and average ratings of ability, social maturation and motivation. However, they received as many above average ratings of ability as they did below average ratings. Thus ability was not as important as social maturation, on which there were many below average ratings, in weighing against French immersion enrolment.

The results of the Teacher's Ratings indicate that teachers do have relatively uniform informal criteria for judging a child's suitability for French immersion. If teachers respond to parents' requests for advice regarding French immersion enrolment, then the parents' choice of a school program will be influenced by these informal selection procedures employed by teachers. This is an important area to be assessed in the next two years of this study. If children who are enrolled in French immersion when

teachers advise against it do poorly in the program, then the informal selection procedures of teachers have merit. The relationship between teachers' advice and progress in French immersion will be assessed in the follow-up studies. In addition, a broader issue emerged in that French immersion is recommended for only the upper strata of the pupils.

Biographical and Background Information Questionnaires. Parents have the final decision regarding French immersion enrolment. Thus, comparisons of the French immersion enrolment group and the English program group formed on the basis of parental choice of kindergarten program provide extensive information which indicates that there are substantial differences between the groups of children entering these two programs. Strong informal selection procedures are in effect to produce the many differences that were found.

Parents outlined some of these selection procedures in the reasons cited for choosing one kindergarten program over the other. Parents who chose French immersion wished to take advantage of the opportunity to learn to speak French and frequently cited the view that younger children learn a second language better than adults. Increased employment opportunities and the general betterment of education were also cited frequently. It thus appears that the French

immersion program was chosen by many parents as a means to accomplish the goal of bilingualism for their children. The importance of this goal was not always clear but parents did tend to cite instrumental reasons, such as increased employment opportunities, more frequently than integrative reasons, such as increased understanding of the other cultural group.

Parents were more explicit in terms of the reasons cited for not enrolling their children in French immersion. Again, parents chose a school program that fulfilled the educational goals that they desired. French immersion was not chosen when parents felt it would not meet educational goals such as a solid grounding in English, the development of socialization skills and the learning of English as a second language in families of ethnic backgrounds other than English or French. Bussing was also a factor weighing against French immersion enrolment. Thus, the reasons expressed by parents for choosing or not choosing the French immersion program point to differences in parents' commitment to bilingualism or to other educational considerations.

Parents also indicated characteristics that they felt were important for success in French immersion. The most frequently cited characteristics were good emotional/ social adjustment, maturity and a desire to learn, good

general ability without learning disabilities and well-developed language skills in English. There was some evidence that parents were guided by these characteristics in the choices made in that teachers' ratings of ability, social maturation and motivation indicated a tendency towards a high representation of children with high ratings on these factors in the French immersion enrolment group.

There were many variables on which the French immersion and English program enrolment groups differed. A greater percentage of children entering French immersion had preschool experience. This finding confirms the earlier findings reported by Trites and Price (1977) and by Lokan and Day (1976). In the latter study, children from more advantaged and higher SES homes tended to have more preschool experience which is also consistent with the differences in home background favouring the French immersion enrolment group in the present study.

There were other differences in terms of chacteristics of children entering the two school programs. Fewer children enrolling in French immersion had special needs such as speech therapy or medication. The French immersion group tended to have a greater representation of children with "Above average" teacher ratings of ability, social maturation and motivation. In contrast the English program group had a higher representation of "Below average" ratings on these

factors. A higher percentage of children for whom teachers predicted difficulty in school was found in the English program enrolment group. This is further evidence that the more capable children will enter French immersion.

The home backgrounds of children to be enrolled in the two kindergarten programs differed in important respects. There were several indications that children who are enrolled in French immersion come from more advantaged backgrounds than children who are enrolled in the English program. The French immersion group tended to be from higher SES backgrounds, their parents read to them more frequently, and they had more books in their homes.

Parental attitudes towards the French language also differed. Since parents tended to choose a school program that would fulfill the educational goals they desired, it was not surprising that parents who chose French immersion enrolment for their children appeared to have more positive attitudes towards learning French. More parents of the French immersion group could speak French or expressed the desire to learn to speak French, fewer parents said they did not wish to learn to speak French and more parents had taken French courses compared with the English program group. This pattern suggests that parents who enrol their children in French immersion are themselves more interested in speaking French and have made greater efforts to learn to speak

it. These parents also show a greater ability and willingness to speak French since their children are exposed to more French in the home than are the children to be enrolled in the English program.

More children to be enrolled in French immersion had siblings in French immersion and fewer of their siblings encountered difficulty in comparison with the smaller group of siblings of the English program group who were enrolled in French immersion. Thus, the French immersion group witnessed more experiences of success in French immersion which would tend to promote a positive view of this program.

The results of the analyses comparing four groups on the basis of agreement or disagreement between parents and teachers regarding kindergarten enrolment decisions suggest some factors that may be related to teachers' disagreement with parents. For most variables of the Biographical and Background Information Questionnaire and Teacher's Ratings, the groups for which parents and teachers agreed upon a kindergarten enrolment decision obtained the extreme scores in the comparisons. When parents and teachers agreed upon French immersion enrolment, this group tended to have the highest positive representation on the variable of interest in contrast to the lowest, or negative, representation generally found for the group that should not be enrolled in French immersion as judged by parents and teachers. The

groups for whom teachers disagreed with the decisions of parents generally obtained scores between the extremes of the agreement groups. Generally, when teachers disagreed with the decision to enrol children in French immersion, these children had less positive representations on variables such as fewer parents who spoke French or wished to speak it, parents read to them less often, lower SES, little preschool experience compared to the group for which parents and teachers agreed upon French immersion enrolment. Similarly, when teachers disagreed that a group of children should be enrolled in the English program, this group had a more positive representation on variables compared to the group for whom parents and teachers agreed upon enrolment in the English program. These relationships were observed for the following variables: full day attendance at Day Care centres, half day attendance at Nursery school, family SES, frequency of languages other than English as the main home language, number of mothers who speak French, number of parents who do not wish to learn to speak French, number of parents who have taken French courses, exposure to French in the home, frequency of reading to the child, number of siblings in French immersion, and number of siblings who did not encounter difficulty in French immersion. These variables appear to be held important by both parents and teachers when making kindergarten enrolment decisions.

The disagreement between parents and teachers was examined further in order to determine the factors which are most highly related to teachers' disagreement. If the group for whom teachers advised French immersion in contrast to parents' decision to enrol children in the English program were more favorably represented on variables than the group for whom teachers advised against French immersion despite parents' decision to enrol the children, then these variables indicate some basis for disagreement between parents and teachers. On this basis, the results suggest that teachers disagree with parents' French immersion enrolment decisions for a group of children who are younger, require more speech therapy, have mothers with lower SES indices, come from homes where more "other" languages are the main language and where more additional languages are spoken, hear French spoken less often in the home, are read to less often, have more "Below average" and fewer "Above average" ratings by teachers on scales of ability, social maturation and motivation, and are more likely to encounter difficulty in school as judged by teachers when compared with the group for whom teachers advise French immersion although parents have chosen the English program.

Early Identification Assessment

In addition to the Biographical and Background Information Questionnaire and Teacher's Ratings, test data

were gathered for 200 four-year-old kindergarten pupils who were to be enrolled in French immersion kindergarten in September of 1977. These children were selected according to the procedures outlined in an earlier section (see "The Sample"). The Early Identification Assessment Battery was also described earlier in the Procedure section. These variables will be analyzed in terms of their validity as predictors of success or failure in primary French immersion when criterion measures of academic progress are obtained at the end of five-year-old French immersion kindergarten and again at the end of grade one French immersion.

French immersion Sample vs. Other French immersion Enrolments. The representativeness of the sample of 200 children was assessed by comparing them to the other 157 French immersion enrolments for whom Biographical and Background Information Questionnaires were available. T-test comparisons (SPSS SUBPROGRAM T-TEST, Nie et al., 1975) of the French immersion sample and the other French immersion enrolments did not reveal any significant differences in age or in SES. Chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) comparing these groups were computed for the remaining variables of the Biographical and Background Information Questionnaire and the Teacher's Ratings. There were no significant differences on most variables so that one could conclude that the home backgrounds of these

children were similar. However, significant differences between these groups were found on the following variables: the main language in the home, the presence of additional languages in the home, the percentage of children with siblings enrolled in French immersion, the experience of difficulty in French immersion for siblings, the occupational status of mothers, the number of books in the home and the advice of teachers with regard to French immersion enrolment.

The number and percent of homes in each group with various languages as the main language are presented in Table 31. The number and percent of homes in which additional languages were spoken are also presented in this table. Significant overall chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) were followed by one-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) computed for each response category to determine group differences. Significantly more families among the other French immersion enrolments spoke a language other than English as their main language. This difference is likely the result of the sampling procedure in which children for whom French was to be a third language were not selected for participation in the Early Identification Project. Also related to this finding was the higher incidence of additional languages spoken in the homes of the other French

Table 31

Chi-square Analyses Comparing the French immersion Sample and Other French immersion Enrolments in Terms of Home Language Environment

	FRENCH IMMERSION SAMPLE		OTHER FRENCH IMMERSION ENROLMENTS		Chi^2	df
	#	%	#	%		
Main language in the home:						
English	199	99.5	143	91.1	0.43	1
French	1	0.5	1	0.6	0.00	1
Italian	0	0.0	1	0.6	2.00	1
German	0	0.0	3	1.9	0.43	1
Other	0	0.0	9	5.7	11.25**	1
Statistical analysis	$Chi^2 = 17.24^{**}$ (df = 4)					
Additional languages spoken in the home?						
Yes	35	17.5	47	30.1	5.99*	1
No	165	82.5	109	69.9	1.80	1
Statistical analysis	$Chi^2 = 7.19^{**}$ (df = 1)					

*p < .05
**p < .01

immersion enrolments compared with the French immersion sample.

There were some significant group differences in the occupational status of mothers (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977). The number and percent of mothers in each occupational status for each group are presented in Table 32. More mothers of the French immersion sample were

Table 32

Chi-square Analyses Comparing the French immersion Sample with Other French immersion Enrolments in Terms of the Occupational Status of Mothers

	FRENCH IMMERSION SAMPLE		OTHER FRENCH IMMERSION ENROLMENTS		Chi^2	df
	#	%	#	%		
Mother's occupational status:						
Employed	53	26.9	42	27.3	0.02	1
Part-time	25	12.7	9	5.8	4.29*	1
Unemployed	0	0.0	1	0.6	1.00	1
Housekeeper	116	58.9	92	59.7	0.00	1
Student	3	1.5	10	6.5	7.97**	1
Statistical analysis	$Chi^2 = 11.24^*$ (df = 4)					

*p < .05

**p < .01

employed on a part-time basis while more mothers of the other French immersion enrolments were students. However, these groups tended to have similar representations of mothers working full-time and mothers who were not employed outside of the home. These differences in occupational status did not seem to indicate differences in the time mothers spent outside of the home and are not considered critical in terms of the representativeness of the French immersion sample.

The French immersion sample had more siblings enrolled in French immersion than the other French immersion enrolments and more siblings of the French immersion sample had not encountered difficulty in French immersion (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) (see Table 33). When only the siblings enrolled in French immersion were considered, only 11.7% of the siblings of the French immersion sample encountered difficulty in contrast with 23.5% of the siblings of the other French immersion enrolments. Thus, the French immersion sample tended to have a greater frequency of positive experiences with French immersion. These experiences might strengthen positive attitudes towards this school program. However, there were no other differences in parental attitudes towards French or learning to speak French.

There was only one significant group difference (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) in terms of the number of books in the home (see Table 34). The other French immersion enrolments had more homes in which there were as few as ten books. However, on the whole these groups tended to have similar numbers of books in the home. Thus, the French immersion sample was seemingly not drawn from more advantaged home backgrounds. Other variables related to the relative levels of advantage of home backgrounds, such as SES and reading to the child did not differ

Table 33

Chi-square Analyses Comparing the French immersion Sample and Other French immersion Enrolments in Terms of Siblings in French immersion

	FRENCH IMMERSION SAMPLE		OTHER FRENCH IMMERSION ENROLMENTS		Chi^2	df
	#	%	#	%		
Siblings in French immersion:						
Yes	77	38.5	34	21.8	8.22**	1
No	123	61.5	122	78.2	3.73	1
Statistical analysis	$Chi^2 = 10.63^{**}$ (df = 1)					
Siblings-Difficulty in French immersion?:						
Yes	9	4.5	8	5.1	0.64	1
No	68	34.0	25	16.0	11.16**	1
N/A	123	61.5	123	78.8	4.23*	1
Statistical analysis	$Chi^2 = 14.73^{**}$ (df = 2)					

*p < .05

**p < .01

for these two groups.

An interesting difference between the French immersion sample and the other French immersion enrolments was found in terms of the teachers' advice regarding French immersion enrolment (see Table 35). French immersion was not advised for a higher percentage of children in the other French immersion enrolment group compared with the French

Table 34

Chi-square Analyses Comparing the French immersion Sample and Other French immersion Enrolments in Terms of the Number of Books in the Home

	FRENCH IMMERSION SAMPLE		OTHER FRENCH IMMERSION ENROLMENTS		Chi^2	df
	#	%	#	%		
Number of Books in the home:						
0- 10	0	0.0	6	3.9	6.00*	1
11- 30	5	2.5	9	5.8	2.63	1
31- 60	18	9.0	13	8.4	0.00	1
61-100	25	12.5	20	13.0	0.09	1
101-200	22	11.0	27	17.5	2.99	1
201-499	66	33.0	37	24.0	1.94	1
500-more	64	32.0	42	27.3	0.62	1
Statistical analysis	$Chi^2 = 16.04^*$ (df = 6)					

*p < .05
**p < .01

Table 35

Chi-square Analyses Comparing the French immersion Sample with Other French immersion Enrolments in Terms of Teachers' Advice Regarding French immersion Enrolment

	FRENCH IMMERSION SAMPLE		OTHER FRENCH IMMERSION ENROLMENTS		Chi^2	df
	#	%	#	%		
Teacher's advice re French immersion enrolment:						
Advised	102	68.5	52	49.5	3.25	1
Not advised	38	25.5	49	46.7	8.00**	1
Undecided	9	6.0	4	3.8	0.33	1
Statistical analysis	$Chi^2 = 12.29^{**}$ (df = 2)					

*p < .05
**p < .01

immersion sample. However, teachers' ratings of ability, social maturation and motivation, and teachers' predictions of difficulty in school did not differ significantly for the two groups.

Despite the few significant differences noted above, the French immersion sample appeared to be representative of children entering French immersion from four-year-old kindergarten programs. The differences noted tended to favour the French immersion sample - that is, they were from English-speaking homes, they had more siblings who experienced success in French immersion and French immersion was advised more frequently for them by teachers. However, there did not appear to be important differences in terms of SES, advantaged home backgrounds, parental attitudes towards the French language or levels of ability, social maturation and motivation as rated by teachers.

Early Identification Assessment Battery. Mean scores and standard deviations obtained by the 200 children in the French immersion sample on the assessment battery are included in Appendix 5. As a group, the 200 children tended to perform well on all measures. Average scores on the WPPSI were in the Bright Normal range and language skills were well developed. Readiness skills for reading were at the first grade level while spelling and arithmetic readiness skills were at the mid to late five-year-old kindergarten

level. Thus, in general, this group is composed of very capable youngsters who respond well to the four-year-old kindergarten program and to the testing situation.

Correlations Among Measures of the Early Identification Assessment Battery. Intercorrelation matrices representing the relationships among variables of the assessment battery are included in Appendix 6. Interrelationships among selected variables will be discussed in this section.

Correlations with IQ measures. The Verbal IQ and Performance IQ scores on the WPPSI were highly correlated with several measures. As has been found in other studies (Bagford, 1968; Cawley et al., 1972), IQ was related to readiness measures. Both Verbal and Performance IQ were highly correlated with WRAT Reading, Spelling and Arithmetic and with the CIRCUS tests of readiness skills.

Teachers' ratings of Inattentive-Passive behaviour (Behaviour Checklist) and of several areas of competence (Pupil Rating Scale) were also highly correlated with Verbal and Performance IQ. Observer's ratings of attention (E) correlated with IQ scores while several observer's ratings of behaviour during test performance were related to Performance IQ.

Matrices, Peabody and errors in Picture Naming were also related to Verbal and Performance IQ scores. Two additional language measures (Renfrew Information, number

of words segmented in any way) correlated with Verbal IQ.

Correlations with Age. The children in the present sample varied little in terms of age and few measures correlated highly with age. Readiness skills in spelling (WRAT), reading (CIRCUS #2) and listening comprehension (CIRCUS #13), and speed of Picture Naming were related to age. Formboard time scores (higher scores indicate poorer performance in these calculations) for the left hand trial and nondominant hand trial, and total time correlated with age.

Correlations with Formboard Measures. It is of considerable interest in view of our earlier findings in the Tactual Performance Test that few correlations with the Formboard measures reached .30 indicating that the abilities tapped by this test are independent of abilities assessed by other measures in the Early Identification Assessment Battery. The Formboard measures were highly intercorrelated, but otherwise they correlated highly only with age (left hand time, nondominant hand time, total time).

Correlations with Word Segmentation. Word segmentation is a developmental skill that has been found to be related to reading readiness (Fox and Routh, 1975). In the present study, Word Segmentation was found to correlate highly with WRAT reading and arithmetic and CIRCUS measures. The only other interesting correlations were with WPPSI IQ

scores, performance on Matrices and Colour Naming, and Observer's Rating of effort (H). These correlations involved the child's ability to segment words into smaller units. The ability to segment words according to conventional syllable boundaries correlated highly only with effort displayed (Observer's checklist: H) and auditory discrimination (CIRCUS #7).

Correlations with Language Measures. The Peabody, a measure of receptive language skills, and the Renfrew, a measure of expressive language skills (Information and Grammar) were not highly correlated. However, the Peabody and Renfrew Information scores were correlated with Verbal IQ, teacher's ratings of auditory comprehension and spoken language, and CIRCUS measures.

Correlations with the Observer's Checklist. The 10 scales on this checklist were highly intercorrelated. Amount of motor activity and amount of speech were not related to other measures of the assessment battery. The other behaviours observed during testing were most frequently correlated with IQ, teacher's ratings (Pupil Rating Scale), WRAT, and CIRCUS. These behaviours reflect how the child reacts to a structured situation (for example, attention, effort, cooperation and interest) and are thus important indicators of the child's ability to cope and learn the classroom setting.

Correlations with Teachers' Behaviour Ratings (Behaviour Checklist, Pupil Rating Scale). The Behaviour Checklist was sensitive to behaviour problems and correlated negatively with some measures. The Conduct Problem scale correlated only with teacher's ratings of Personal-Social Behaviour while Anxiety was not related to other measures. Inattentive-Passive Behaviour correlated with IQ, WRAT, CIRCUS, Picture and Colour Naming, Observer's rating of attention and the Pupil Behaviour rating scales which were also completed by teachers. Hyperactivity also correlated with the other teacher ratings and with Full Scale IQ.

Scores on the Pupil Rating Scale were related to the Behaviour Checklist and to several other measures. Orientation was not highly correlated with other test variables. However, Auditory Comprehension, Spoken Language, Motor Coordination and Personal-Social Behaviour were found to correlate highly with IQ, WRAT, and CIRCUS scores and some Observer's ratings. The first two measures were also related to the Peabody, and Picture Naming.

Comparison of Groups Formed on the Basis of Teachers' Agreement with Parents' French immersion Enrolment Decision. All parents of the 200 children who were tested extensively intended to enrol these children in French immersion. Teacher's Ratings, with "Special Cases" omitted, were available for 149 of the 200 children and they

indicated some disagreement with the parents' decisions. Teachers advised French immersion enrolment for 68.5% (102) of these children and were undecided about another 6% (9). However, teachers would not advise French immersion enrolment for 25.5% (38) of the children who are to be enrolled in the program. Thus, three groups of children were formed for comparison in analyses of variance (SPSS SUBPROGRAM ONEWAY, Nie et al., 1975). One group consisted of the 102 children whom parents and teachers considered possible candidates for French immersion (Agreement). A second group consisted of the 38 children for whom teachers did not agree with the parents' choice of the French immersion program (Disagreement). The third group consisted of the 9 children about whom teachers were undecided (Undecided).

Parents' Reasons for Choosing French immersion Enrolment. The parents' reasons for choosing enrolment in French immersion are presented in Table 36 for the three groups based on agreement between parents and teachers. For all groups, the opportunity to learn to speak French (#1) was cited most frequently, followed by the view that younger children are better second language learners (#2). The percent of responses falling in each category was similar for the three groups in most cases. However, the Disagreement group and the Undecided group cited increased

Table 36

Frequency of Occurrence of Twelve Categories of Parents' Reasons for Choosing French immersion Enrolment

Parents' Reasons for Choosing French immersion Enrolment:	AGREEMENT		DISAGREEMENT		UNDECIDED	
	#	%	#	%	#	%
1. Opportunity to learn to speak French, to have proficiency in two official Canadian languages.	59	32.4	20	30.8	6	40.0
2. Most painless and efficient way to teach a child a language; the younger the better for teaching a child to speak a new language comfortably and well.	36	19.8	13	20.0	2	13.3
3. Very positive attitude of child (interested, eager, enthusiastic).	3	1.7	2	3.1	0	0.0
4. Availability of program in local school (no English kindergarten.	3	1.7	0	0.0	0	0.0
5. Increase future employment opportunities.	18	9.9	11	17.0	2	13.3
6. Increase understanding of the other cultural group.	16	8.8	5	7.7	1	6.7
7. Family is French Canadian, or French is the language of one parent.	3	1.7	0	0.0	0	0.0
8. Child enjoys school and is having no problems.	1	0.6	1	1.5	0	0.0
9. Program is a challenge and should help prevent boredom in the second kindergarten year.	8	4.4	2	3.1	0	0.0
10. Communication enrichment (all language skills will be improved).	5	2.8	1	1.5	1	6.7
11. Good experience with French immersion of siblings or friends.	8	4.4	1	1.5	2	13.3
12. General betterment of education (any second language is of value).	22	12.1	9	13.8	1	6.7

future employment opportunities (#5) more frequently than the Agreement group. In addition, the Undecided group cited the good experience of siblings or friends in French immersion (#11) more frequently than the other groups.

Descriptive Information. Age, sex, hand dominance and SES information for the three groups are presented in Table 37. Chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) indicated that there were no significant difference in the sex composition or in the distribution of right-handers and left-handers in these groups. One-way analyses of variance (SPSS SUBPROGRAM ONEWAY, Nie et al., 1975) computed for the other descriptive variables indicated one significant difference. The SES based on the mother's occupation was significantly lower in the Disagreement group compared to the Agreement and Undecided groups. The working status of mothers was examined further. Forty-two percent of mothers of children in the Agreement and Disagreement groups were employed outside of the home, with similar percentages of mothers of the Disagreement and Agreement groups employed full-time (31.6% and 27.7% respectively). Thus, teachers did not seem to be influenced by whether or not a child's mother worked outside of the home when advising for or against French immersion. However, if teachers do consider SES factors in these decisions, they may be more sensitive to the SES based on the mother's occupation as a

Table 37

Age, Sex, Hand Dominance and SES Comparisons of the Three Parent-Teacher Agreement Groups

	SEX				HAND DOMINANCE				AGE		SES					
	Males		Females		Right		Left				Father		Mother		Family	
	#	%	#	%	#	%	#	%	X	SD	X	SD	X	SD	X	SD
Agreement (n=102)	43	42.2	59	57.8	96	94.1	6	5.9	4.9	0.3	61.7	12.0	54.5	11.3	61.6	11.7
Disagreement (n= 38)	22	57.9	16	42.1	33	86.8	5	13.2	4.8	0.3	59.4	11.6	46.2	11.2	5.9	10.7
Undecided (n= 9)	4	44.4	5	55.6	7	77.8	2	22.2	5.0	0.2	65.9	4.8	52.4	1.1	64.2	6.5
Statistical analysis	Chi^2=2.77 (df=2)				Chi^2=4.03 (df=2)				F Ratio=2.006 (df=2,146)		F Ratio=1.072 (df=2,135)		F Ratio=4.104* (df=2,59)		F Ratio=0.946 (df=2,142)	

*p < .05

**p < .01

result of closer contact with the mother.

Other Biographical and Background Information. Chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) of the remaining variables of the Biographical and Background Information Questionnaire indicated that there were no significant differences among the three groups formed on the basis of the teachers' advice regarding French immersion enrolment.

Teacher's Ratings. There were several interesting significant differences on the Teacher's Ratings as revealed by chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie and Hull, 1977). The number and percent of "Below average," "Average" and "Above average" ratings of ability, social maturation and motivation are presented for these three groups in Table 38. There were significant differences on all three variables. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) were computed for each category to determine group differences. There were significant group differences in the number of "Below average" and "Above average" ratings on these three factors. The Agreement group had the highest percentage of "Above average" ratings and the lowest percentage of "Below average" ratings on all three factors. The Disagreement group had the fewest "Above average" ratings on all factors and had the most "Below average" ratings in ability and social

Table 38

Chi-square Analyses Comparing the Three Parent-Teacher Agreement Groups on Teachers' Ratings of Ability, Social Maturation and Motivation

		AGREEMENT	DISAGREEMENT	UNDECIDED	Chi^2	df
ABILITY						
Below average	#	0	6	1	13.90**	2
	%	0.0	15.8	11.1		
Average	#	44	26	5	3.31	2
	%	43.6	68.4	55.6		
Above average	#	57	6	3	10.13**	2
	%	56.4	15.8	33.3		
Statistical analysis		$Chi^2 = 29.29$** (df = 4)				
SOCIAL MATURATION						
Below average	#	10	15	2	13.0**	2
	%	9.8	39.5	22.2		
Average	#	56	22	6	0.22	2
	%	54.9	57.9	66.7		
Above average	#	36	1	1	12.45**	2
	%	35.3	2.6	11.1		
Statistical analysis		$Chi^2 = 26.12$** (df = 4)				
MOTIVATION						
Below average	#	1	3	4	12.7**	2
	%	1.0	7.9	44.4		
Average	#	57	34	4	4.93	2
	%	55.9	89.5	44.4		
Above average	#	44	1	1	16.87**	2
	%	43.1	2.6	11.1		
Statistical analysis		$Chi^2 = 51.09$** (df = 4)				

*p < .05

**p < .01

maturation. However, in terms of motivation, the percent of "Below average" ratings was highest in the Undecided group.

Teachers may consider a child's level of motivation to be a decisive factor in choosing a school program for children who are average or above average in ability or social maturation.

Further examinations of the pattern of teacher ratings for each group indicated that the majority of ratings of the Agreement group were "Average" or "Above average" in all areas. For the "Undecided" group, the "Average" and "Above average" ratings in ability were contrasted by "Average" and "Below average" ratings in terms of social maturation and motivation. The Disagreement group tended to have "Average" ratings in ability and motivation with a comparatively high incidence of "Below average" ratings of social maturation. Thus, even when ability levels are average or above average, teachers may advise against French immersion if social maturation is lacking. These findings are consistent with the results reported earlier - teachers stressed the child's general development, especially maturity and emotional/social adjustment, when advising against French immersion enrolment.

Teachers' predictions of the likelihood of school difficulty were examined for the children in the three groups formed on the basis of the teachers' advice regarding French immersion enrolment. The number and percent of children in each group who were rated in the three cate-

gories of school difficulty are presented in Table 39.

Table 39

Chi-square Analyses Comparing the Three Parent-Teacher Agreement Groups on Teachers' Ratings of School Difficulty

		AGREEMENT	DISAGREEMENT	UNDECIDED	Chi^2	df
Teachers' predictions of school difficulty:						
No school difficulty	#	96	16	7	25.06**	2
	%	95.0	43.2	87.5		
Likely school difficulty	#	5	18	0	7.87*	2
	%	5.0	48.6	0.0		
Possible school difficulty	#	0	3	1	9.25**	2
	%	0.0	8.1	12.5		
Statistical analysis		$Chi^2 = 52.55$** (df = 4)				

*p < .05

**p < .01

The overall chi-square analysis (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) was significant. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) indicated significant group differences in all three categories.

Ninety-five percent of children for whom teachers advised French immersion (Agreement) were not expected to encounter difficulty in school. In contrast, only 43% of children for whom French immersion was not advised (Disagreement) were expected to progress in school without difficulty. A

high percentage (88%) of children in the Undecided group were not expected to have difficulty in school, but this group had the highest percentage (13%) for whom difficulty in school was possible. The highest percentage of children likely to encounter difficulty in school was found for the Disagreement group. Thus, in many cases, teachers were reluctant to recommend French immersion when they expected the child to experience difficulty in school.

Early Identification Assessment Battery. The results of the Early Identification Assessment Battery were compared for the three parent-teacher agreement groups. The means, standard deviations and results of Newman-Keuls multiple comparisons are presented in Table 40 for the variables on which there were significant differences indicated by oneway analyses of variance (SPSS SUBPROGRAM ONEWAY, Nie et al., 1975). In general, the results indicated that the Agreement group significantly outperformed the Disagreement group on all 46 variables where there were significant group differences, and they outperformed the Undecided group on 29 of these variables.

Teachers advised French immersion enrolment for a group of children with Bright Normal to Superior IQ scores on the WPPSI. However, compared to the average child, the Disagreement and Undecided groups also did well on the WPPSI and obtained IQ scores in the Average to Bright

TABLE 40

Means, Standard Deviations, F Ratios and the Results of Newman-Keuls for Significant Comparisons of the Three Parent-Teacher Groups on the Early Identification Assessment Battery

		1) AGREEMENT (102)			2) DISAGREEMENT (38)			3) UNDECIDED (9)			
		$\bar{X}$	SD	N-K[A]	$\bar{X}$	SD	N-K	$\bar{X}$	SD	N-K	F Ratio[1]
WPPSI:	PIQ	119.5	12.4	2,3	109.8	12.0		111.1	8.1		10.03**
	FSIQ	122.1	12.0	2,3	113.8	12.0		116.1	8.1		7.36**
	Information	14.3	2.7	2	13.0	2.8		13.8	1.9	2	3.36*
	Arithmetic	13.3	2.5	2,3	12.1	2.2		12.3	1.2		4.24*
	Sentences	11.0	3.0	2,3	9.1	2.7		9.3	2.3		7.00**
	Animal House	12.7	2.4	2,3	11.3	2.6		11.2	1.8		5.84**
	Picture Completion	13.4	2.5	2,3	12.4	2.8	3	11.6	1.9		3.33*
	Geometric Design	12.6	2.8	2,3	10.8	2.5		11.1	2.0		6.64**
	Block Design	13.4	2.7	2,3	11.7	2.9		12.8	2.4	2	5.87**
PEABODY:	Mental Age	6.6	1.3	2,3	5.7	1.1		6.1	1.2	2	6.95**
	IQ	118.4	14.0	2,3	110.3	14.3		111.3	14.6		5.08**
MATRICES:	Raw Score	18.2	4.4	2,3	15.7	4.7		16.2	4.9		4.77**
	Percentile (age 5½)	83.8	16.4	2,3	72.4	27.7		74.4	26.4		4.73*
WRAT:	Reading grade level	1.1	0.4	2,3	0.9	0.4		1.0	0.4	2	5.21**
	Spelling grade level	0.6	0.4	2,3	0.3	0.4		0.4	0.2		8.35**
	Arithmetic grade level	0.9	0.4	2	0.6	0.4		0.9	0.3	2	13.68**
WORD SEGMENTING:	Total Segmented	13.9	4.2	2,3	11.3	6.0		11.2	6.2		4.74*
	Total by Syllable	9.5	3.6	2,3	7.6	4.6		8.1	5.1		3.39*
COLOUR NAMING:	Total Correct	9.4	1.0	2	8.8	1.4		9.4	1.0	2	5.26**
RENFREW:	Information	25	3.2	2	23.1	3.5		27.8	2.1	1,2	9.64**
	Grammar	27.2	4.5	2	25.1	4.3		31.0	2.7	1,2	7.40**
FORMBOARD:	Right hand time	98.7	0.8	2	98.3	1.3		99.2	0.3	1,2	4.56*
	Right hand # blocks	3.0	0.0	2	2.8	0.6		3.0	0.0	2	4.06*
	Left hand time	99.0	0.7	2	98.6	1.1		99.3	0.5	1,2	3.33*
	Total time	97.0	1.5	2	96.0	2.8		98.0	0.8	1,2	5.57**
	Total # blocks	8.8	0.6	2,3	8.5	1.3		8.3	2.0		3.59*
	Nondominant time	99.0	0.7	2	98.5	1.2		99.4	0.3	1,2	6.40**
	Left hand time per block	33.0	0.3	2	31.2	7.3		33.1	0.2	1,2	3.35*
OBSERVER'S CHECKLIST:	B: Performance rate	5.6	1.3	2,3	4.5	1.5		4.9	1.2	2	9.05**
	C: Manual dexterity	5.7	1.3	2,3	4.8	1.3		4.6	2.0		8.47**
	F: Anxiety	5.8	1.3	2	4.8	1.3		5.8	1.3	2	7.71**
	G: Self Confidence	5.7	1.6	2	4.6	1.4		5.3	1.9	2	7.11**

continued

Table 40 continued

	1) AGREEMENT (102)			2) DISAGREEMENT (38)			3) UNDECIDED (9)			
	$\bar{X}$	SD	N-K	$\bar{X}$	SD	N-K	$\bar{X}$	SD	N-K	F-Ratio[1]
+ BEHAVIOR CHECKLIST (Teachers):										
Inattentive - Passive	14.0	14.4		25.3	23.3	1,3	17.9	15.4		5.98**
Hyperactivity	16.3	17.6		27.2	28.4	1,3	18.5	18.8		3.73*
PUPIL RATING SCALE (Teachers):										
Auditory Comprehension	14.2	2.6	2,3	11.6	2.1		12.0	1.2		17.93**
Spoken Language	17.0	2.9	2,3	14.2	1.8		15.1	0.3	2	16.93**
Motor Coordination	10.1	1.9	2,3	8.6	1.6		8.9	0.9		9.78**
Personal-Social Behaviour	26.9	4.1	2,3	22.9	3.3		22.1	3.9		18.40**
Verbal	31.3	5.3	2,3	25.7	3.6		27.1	1.5	2	19.73**
Nonverbal	50.1	7.0	2,3	43.6	4.5	3	41.5	4.6		18.44**
Total	81.2	11.3	2,3	69.5	7.1		68.3	5.0		21.1 **
CIRCUS: #2: Quantitative Concepts	32.0	5.1	2	28.1	5.2		31.7	3.5	2	8.31**
#5: Letters and Numerals	17.7	2.2	2,3	16.2	3.7		16.9	2.7	2	4.81**
#7: Auditory Discrimination	40.7	2.9	2,3	38.1	2.9		39.2	2.6	2	11.83**
#9: Listening Comprehension	17.8	3.4	2	16.0	3.1		17.6	2.2	2	3.97*
#13: Problem-solving	22.0	4.5	2,3	18.3	4.2		19.8	4.9	2	9.45**

[1] Degrees of freedom = 2,146 for all comparisons.

[2] Results of Newman-Keuls tests: list the number(s) of the group(s) with scores significantly lower than the score of the designated group.

Δ N-K = Newman-Keuls.

+ Higher scores indicate a greater incidence of problems.

* $p < .01$.

** $p < .05$.

Normal range. The Agreement group also had the best performance on the Matrices. The differences among these groups tended to be on performance rather than verbal measures which is interesting in view of the expected emphasis upon language skills in the French immersion program. The Agreement group did have significantly more well developed receptive language skills (Peabody Picture Vocabulary Test), but again the Undecided and Disagreement groups obtained scores in the Average to Bright Normal range. The Agreement group did excel in comparison to the other groups on the Word Segmentation task which requires the manipulation of speech sounds. The segmentation of words into smaller units and syllables is a developmental skill (Fox and Routh, 1975). The good performance by the children in the Agreement group suggests that these children are more advanced in terms of manipulation of the speech signal. Abilities of this type have been related to progress in reading (Fox and Routh, 1975) and the more advanced reading readiness skills of the Agreement group are consistent with their more advanced word segmentation abilities. Readiness skills assessed by the CIRCUS test also indicated that the Agreement group was more advanced than the other groups in terms of the knowledge of letters and numbers, auditory discrimination, and problem-solving. Ratings by the Observer and by teachers indicated that the Agreement

group was rated most highly in terms of performance rate, manual dexterity, motor coordination, auditory comprehension and spoken language.

Thus, in comparison to the other two groups, the Agreement group stands out in terms of high scores on performance IQ measures, better manipulation of the speech signal, auditory discrimination and comprehension, spoken language, and readiness skills.

Although they had significantly lower performance levels than the Agreement group on the measures discussed above, the Undecided group significantly outperformed the Disagreement group on the Information and Block Design subtests of the WPPSI, on expressive and receptive language measures (Peabody, Renfrew), on several Formboard measures, on Colour Naming, on readiness skills for reading, arithmetic, auditory discrimination, listening comprehension and problem-solving, Observer's ratings of performance, anxiety and self-confidence, and teacher's ratings of spoken language. In addition, the Undecided group had better expressive language skills (Renfrew) and better performance on several Formboard measures when compared with the Agreement group. The Agreement and Undecided groups had similar performance levels on measures of arithmetic readiness, Colour Naming, listening comprehension, and Observer's ratings of anxiety and self-confidence. These two

groups also had the lowest ratings of behaviour problems in contrast to the Inattentive-Passive and Hyperactive behaviour of the Disagreement group (Behaviour Checklist). This pattern of results suggests that teachers have difficulty in advising a school program for children who do not present behaviour problems, who have well-developed expressive language skills, and good listening comprehension and psychomotor problem solving ability, but who have lower performance IQ scores, lower receptive language skills and ability to manipulate the speech signal, less advanced reading readiness skills, auditory comprehension and problem-solving abilities as well as lower levels on all competence areas rated by teachers (Pupil Rating Scale).

Sex Differences. Sex has been found to be an important variable in studies predicting school success (De Hirsch et al., 1966; Wand, 1974). The 96 males and 104 females in the French immersion sample were compared to determine sex differences.

T-test comparisons (SPSS SUBPROGRAM T-TEST, Nie et al., 1975) and chi-square analyses (SPSS SUBPROGRAM CROSSTABS, Nie et al., 1975) were computed on the variables of the Biographical and Background Information Questionnaire and the Teacher's Ratings. There were no significant sex differences on the variables of the questionnaire filled out by parents. However, teachers' ratings indicated a signifi-

cant sex difference in motivation. The number and percent of children in each response category for the ratings of ability, social maturation, motivation and predicted school difficulty are presented in Table 41. One-sample chi-square tests (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977) were computed to determine group differences in "Below average," "Average" and "Above average" ratings of motivation. Females received significantly more "Above average" ratings when compared with males.

T-test comparisons (SPSS SUBPROGRAM T-TEST, Nie et al., 1975) indicated significant sex differences on several variables of the Early Identification Assessment Battery. The means, standard deviations and t-probabilities for variables on which there were significant differences between the 96 males and 104 females are presented in Table 42. All of the significant differences indicated superior performance by the females. Although there were no differences in Verbal or Performance IQ scores on the WPPSI, females outperformed males on one verbal subtest (Sentences) and on two performance subtests (Animal House and Geometric Design). Better performance by females on other performance or manipulative tasks (WRAT Spelling and FORMBOARD Time scores) may reflect more advanced manual dexterity. The examiners rated females as significantly higher than males in terms of performance rate and manual dexterity

Table 41

Chi-square Analyses Comparing Males and Females on Teacher's Ratings of Ability, Social Maturation, Motivation and Expected Difficulty in School

	Males		Females			
	#	%	#	%	Chi^2	df
ABILITY						
Below average	3	3.2	4	3.8		
Average	47	50.5	53	51.0		
Above average	43	46.2	47	45.2		
Statistical analysis	$Chi^2 = 0.07$ (df = 2)					
SOCIAL MATURATION						
Below average	22	23.2	20	19.2		
Average	56	58.9	58	55.8		
Above average	17	17.9	26	25.0		
Statistical analysis	$Chi^2 = 1.61$ (df = 2)					
MOTIVATION						
Below average	11	11.7	6	5.8	2.13	1
Average	65	69.1	58	56.3	1.59	1
Above average	18	19.1	39	37.9	5.70*	1
Statistical analysis	$Chi^2 = 9.21$* (df = 2)					
Predictions re difficulty in school:						
No school difficulty	65	69.1	82	82.8		
Likely school difficulty	20	21.3	13	13.1		
Possible school difficulty	9	9.6	4	4.0		
Statistical analysis	$Chi^2 = 5.25$ (df = 2)					

*$p < .05$

(Observer's Checklist: B and C) while teachers rated the motor coordination of females as significantly higher than males (Pupil Rating Scale).

Table 42

Means, Standard Deviations and t probabilities for Significant T test Comparisons by Sex on the Early Identification Assessment Battery

	Males (n=96)		Females (n=104)		
	$\bar{X}$	SD	$\bar{X}$	SD	t Prob.
WPPSI: Sentences	9.8	2.9	10.6	2.9	0.029
Animal House	11.3	2.3	12.7	2.3	0.000
Geometric Design	11.6	2.8	12.3	2.6	0.041
WRAT: Reading grade level	1.0	0.4	1.1	0.4	0.007
Spelling grade level	0.4	0.4	0.6	0.4	0.002
COLOUR NAMING	8.9	1.6	9.5	0.9	0.001
FORMBOARD:					
Right hand time	98.5	1.0	98.8	0.7	0.028
Total time	96.6	2.1	97.2	1.4	0.030
Dominant hand time	98.5	1.0	98.8	0.7	0.034
OBSERVER'S CHECKLIST:					
B: Performance Rate	4.9	1.4	5.4	1.5	0.023
C: Manual Dexterity	5.0	1.4	5.6	1.4	0.002
+BEHAVIOUR CHECKLIST (teachers)					
Conduct Problem	12.5	17.1	7.5	13.3	0.021
Inattentive-Passive	22.7	20.8	15.1	15.6	0.004
Hyperactivity	27.8	27.1	15.0	20.3	0.000
PUPIL RATING SCALE (teachers)					
Motor Coordination	9.1	1.9	10.0	2.0	0.002
Personal-Social Behaviour	24.0	5.2	26.2	4.5	0.002
Nonverbal	45.8	7.8	48.8	7.6	0.006
Total	74.3	13.4	78.2	12.4	0.041
CIRCUS					
5: Letters and Numbers	16.3	3.8	17.4	2.4	0.019

+ Higher scores indicate a greater incidence of problems.

Females also outperformed males in terms of the time scores for the trials performed with the right hand and dominant hand, and the total time score for the Formboard test.

Other skills that were more highly developed in females included reading readiness knowledge of letters and numbers (WRAT reading; CIRCUS #5), knowledge of colour names, and problem-solving ability (CIRCUS #13). Teachers noted significantly more problem behaviour among boys (Behaviour Checklist: Conduct Problem, Inattentive-Passive and Hyperactivity) and more advanced social skills among females (Pupil Rating Scale: Personal-Social Behaviour).

Comparisons of Hand Dominance Groups. Oneway ANOVAS (SPSS SUBPROGRAM ONEWAY, Nie et al., (1975) and chi-square comparisons (SPSS SUBPROGRAM CROSSTABS, Nie and Hull, 1977) of right-and left-handers on variables from the Biographical and Background Information Questionnaire and Teacher's Ratings did not reveal any significant group differences in terms of these factors.

Right- and left-handers were also compared by computing T-tests (SPSS SUBPROGRAM T-TEST, Nie et al., 1975) for variables of the Early Identification Assessment Battery. The means, standard deviations and t-probabilities are presented in Table 43 for the variables on which the differences were significant. The 22 left-handers

Table 43

Means, Standard Deviations and t probabilities for Significant T-test Comparisons of Hand Dominance Groups on the Early Identification Assessment Battery

	Rt. dominant		Left dominant		
	$\bar{X}$	SD	$\bar{X}$	SD	t prob.
WPPSI: Animal House	12.1	2.4	11.0	2.0	0.021
Picture Completion	13.0	2.5	11.6	2.0	0.004
WRAT: Reading grade level	1.07	0.4	0.9	0.4	0.041
+PICTURE NAMING: # Errors	8.5	3.6	10.3	3.5	0.031
COLOUR NAMING: #Correct	9.4	1.0	8.1	2.4	0.000
FORMBOARD: Total time	97.0	1.6	96.1	2.9	0.018
Total # blocks	8.9	0.7	8.3	1.9	0.003
Nondominant time	99.0	0.8	98.5	1.1	0.009
Both time	99.3	0.5	98.9	1.2	0.002
TIME PER BLOCK: Right hand	32.6	3.7	35.7	13.2	0.013
Total	11.0	2.5	13.0	6.4	0.007
Nondominant hand	32.8	2.4	35.7	13.2	0.009
OBSERVER'S CHECKLIST:					
C: Manual Dexterity	5.4	1.4	4.7	1.3	0.035
+BEHAVIOUR CHECKLIST (teachers)					
Inattentive-Passive	17.6	17.5	27.8	24.7	0.016
PUPIL RATING SCALE (teachers)					
Auditory Comprehension	13.3	2.9	11.6	3.2	0.018
Spoken Language	16.2	3.0	14.1	3.0	0.005
Motor Coordination	9.7	2.0	8.5	1.4	0.001
Personal - Social Behaviour	25.4	4.9	22.9	4.9	0.031
Verbal	29.6	5.7	25.7	5.8	0.006
Nonverbal	47.8	7.7	43.3	8.1	0.030
Total	77.1	12.7	69.1	13.0	0.018
CIRCUS:					
#5: Letters and Numerals	17.1	3.0	15.0	4.2	0.003

+ Higher scores indicate a greater incidence of problems.

tended to perform more poorly than the 178 right-handers on several measures including WPPSI Animal House and Picture Completion, WRAT reading, Formboard total time and nondominant hand times, picture and colour naming, CIRCUS knowledge of letters and numbers and several behaviour ratings by the examiners and teachers. Although the verbal IQ scores and vocabulary scores of left-handers did not differ significantly from right-handers, it is interesting to note that they have not learned to identify letters, numbers, pictures and colours as well as right-handers. These results, together with teachers' ratings of high levels of inattentive-passive behaviour suggest that the left-handers may as a group lag in the development of school readiness. They were rated by teachers as having less well-developed auditory comprehension, spoken language, motor coordination and personal-social behaviour compared to right-handers. The association of left handedness with lower scores on the Formboard task will be examined carefully in the follow-up assessments.

Comparisons by Sex and Hand Dominance. Males and females were divided into groups of right handers and left handers. There were 81 right-handed males, 15 left-handed males, 97 right-handed females and 7 left-handed females. Oneway analyses of variance (SPSS SUBPROGRAM ONEWAY, Nie et al., 1975) and chi-square analyses (SPSS SUB-

PROGRAM CROSSTABS, Nie et al., 1975) of the Biographical and Background Information Questionnaires and Teacher's Ratings did not reveal any significant differences among these groups. Oneway analyses of variance (SPSS SUBPROGRAM ONEWAY, Nie and Hull, 1977) were computed for the Early Identification Assessment Battery variables. Means, standard deviations and the results of Newman-Keuls multiple comparisons are presented in Table 44 for the variables on which the oneway ANOVAS indicated significant differences. On most variables where significant differences were found, the left-handed males had the poorest performance levels. The significant differences were found on three WPPSI subtests, WRAT reading and spelling, colour naming, the Formboard task, CIRCUS knowledge of letters and numbers and behaviour ratings by observers and teachers. Compared to the two right-handed groups, the left-handers had poorer performance rates as rated by our examiners, poorer behaviour as rated by teachers in terms of passivity, auditory comprehension, motor coordination, and total scores on the pupil rating scale. However, the female left-handers frequently outperformed the male left-handers and occasionally outperformed female right-handers (WPPSI Comprehension and Formboard time for the trial performed with both hands).

In general the female right-handers performed best, followed by the female left-handers, then the male right-

Means, Standard Deviations, F Ratios and the Results of Newman-Keuls for Significant Comparisons of the Four Sex and Hand Dominance Groups on the Early Identification Battery

	1. Right-handed Males (81)			2. Left-handed Males (15)			3 Right-handed Females (97)			4Left-handed Females (7)				
	$\bar{X}$	SD	N-K[1Δ]	$\bar{X}$	SD	N-K	$\bar{X}$	SD	N-K	$\bar{X}$	SD	N-K	F-Ratio	df
WPPSI: Comprehension	12.3	2.5	2	10.7	2.8		12.1	2.6	2	13.9	2.4	1,2,3	* 2.82	3,196
Sentences	10.0	2.8	2	8.4	2.9		10.6	2.9	1,2	10.7	2.1	1,2	* 2.97	3,196
Animal House	11.4	2.3	2	10.4	1.8		12.7	2.4	1,2	12.3	1.8	1,2	** 7.49	3,196
WRAT: Reading grade	1.0	0.4	2	0.8	0.4		1.1	0.4	1,2	1.0	0.3	2	* 3.53	3,196
Spelling grade	0.4	0.3		0.5	0.4		0.6	0.4	1,2,4	0.5	0.3		* 3.64	3,196
FORMBOARD: Both time	99.3	0.5	2	98.6	1.4		99.3	0.4	2	99.6	0.2	1,2,3	** 7.95	3,195
Both # blocks	3.0	0.0	2	2.9	0.5		3.0	0.0	2	3.0	0.0	2	** 4.30	3,195
Total time	96.8	1.7	2	95.7	3.5		97.2	1.5	2	97.0	0.9	2	* 3.49	3,195
Total # blocks	8.8	0.8	2	7.9	2.3		8.9	0.6	2	9.0	0.0	2	** 5.46	3,195
Nondominant # blocks	3.0	0.0	2	2.9	0.5		3.0	0.0	2	3.0	0.0	2	** 4.30	3,195
Colour Naming	9.2	1.1	2	7.5	2.6		9.5	0.9	1,2	9.4	0.5	1,2	**12.54	3,196
OBSERVER'S CHECK LIST:														
B: Performance Rate	5.0	1.3	2,4	4.6	1.8	4	5.5	1.4	1,2,4	4.3	1.8		* 3.51	3,196
C: Manual Dexterity	5.1	1.4	2	4.6	1.5		5.6	1.4	1,2,4	5.0	0.8	2	** 4.14	3,196
+BEHAVIOUR CHECKLIST (teachers):														
Conduct Problem	13.4	17.9	2,3	7.6	11.2		7.0	12.3		13.1	24.1	2,3	* 2.80	3,196
Inattentive-Passive	21.1	19.8	3	31.1	24.6	1,3,4	14.7	14.8		20.6	25.2	3	** 4.40	3,196
Hyperactivity	28.2	28.2	3	25.9	20.9	3	14.0	18.5		27.8	37.5	3	** 5.64	3,196
PUPIL RATING SCALES:														
Auditory Comprehension	13.2	3.0	2,4	11.1	3.1		13.4	2.8	2,4	12.4	3.4	2	* 2.81	3,196
Spoken Language	16.2	2.9	2	13.3	3.0		16.2	3.1	2	15.9	2.0	2	** 4.20	3,196
Motor Coordination	9.3	1.9	2,4	8.5	1.5		10.1	2.0	1,2,4	8.6	1.3		** 5.45	3,196
Personal-Social Behaviour	24.3	5.3	2	22.3	4.4		26.3	4.4	1,2,4	24.0	6.1	2	** 4.62	3,196
Verbal	29.5	5.8	2,4	24.5	5.9		29.7	5.6	2,4	28.3	5.0	2	* 3.79	3,196
Nonverbal	46.2	7.8	2,4	43.0	7.3		49.1	7.4	1,2,4	44.0	10.4		** 4.09	3,191
Total	75.4	13.3	2,4	67.8	12.4		78.5	12.2	1,2,4	72.0	14.8	2	* 3.30	3,191
CIRCUS: #5: Letters and Numbers	16.7	3.6	2	14.3	4.3		17.5	2.3	1,2,4	16.6	3.6	2	** 4.70	3,196

[1] Results of Newman-Keuls: (see Table 40).

[Δ] N-K = Newman-Keuls.

\+ A higher score indicates a greater incidence of problems.

* $p < .05$.

** $p < .01$.

handers with the male left-handers having the poorest performance levels.

VIQ - PIQ Split Comparisons. The 200 Ss were divided into 3 groups based upon the relationship between the Verbal IQ (VIQ) and Performance IQ (PIQ) scores obtained on the WPPSI. One group consisted of the 33 Ss for whom PIQ was greater than VIQ by 10 or more points (high PIQ group). Forty-six subjects had a PIQ which was 10 or more points lower than their VIQ (low PIQ group). The 121 children whose VIQ and PIQ differed by less than 10 points formed a third group for comparison (median group).

In terms of information obtained on the Biographical and Background Information Questionnaire and the Teacher's Ratings, only two differences among these groups were significant. Family SES indices differed (F Ratio = 3.260, df = 2, 190, $p < .05$; SPSS SUBPROGRAM ONEWAY, Nie et al., 1977) such that the low PIQ group had the highest mean SES (64.5) compared to the high PIQ group ($\bar{X} = 58.4$) and the median group ($\bar{X} = 60.1$). The other significant difference involved chi-square analyses (SPSS SUBPROGRAM NPAR, Nie and Hull, 1977), of exposure to French in the neighbourhood. The low PIQ and median group tended to hear French spoken in the neighbourhood less often than the high PIQ group.

The significant differences among these groups on the Early Identification Assessment Battery are

presented in Table 45. These differences tended to be accounted for on the basis of IQ test performance with few other differences of interest. However, the split in Verbal and Performance IQ may be a potential predictor of performance in the primary French immersion program and will be examined carefully in later stages of the study.

Summary of Early Identification Assessment Project

The 200 children who were tested for the Early Identification Project were found to be representative of children who enter French immersion kindergarten from four-year-old English kindergarten programs. The differences noted between the French immersion sample and other French immersion enrolments tended to favour the French immersion sample in that they were from English-speaking homes where few additional languages were spoken, they had more siblings who had experienced success in French immersion and teachers had advised French immersion enrolment for more of them. However, there were no important differences in SES, advantaged home backgrounds, parental attitudes towards the French language or in levels of ability, social maturation and motivation. Thus, one may have confidence that the results obtained for the French immersion sample are applicable to other children entering French immersion from four-year-old kindergarten programs.

Table 45

Means, Standard Deviations, F Ratios and the Results of Newman-Keuls for Significant Comparisons of VIQ - PIQ Split Groups on the Early Identification Assessment Battery

	1. Higher PIQ (PIQ > VIQ)			2. Lower PIQ (PIQ < VIQ)			3. Median Group			
	$\bar{X}$	SD	N-K[1Δ]	$\bar{X}$	SD	N-K	$\bar{X}$	SD	N-K	F-Ratio[2]
WPPSI: VIQ	109.2	12.7		126.1	9.9	1,3	117.8	11.3	1	**22.129
PIQ	123.4	13.0	2,3	107.7	8.7		116.9	11.2	2	**21.100
Information	12.1	3.2		14.8	2.6	1,3	13.4	2.6	1	** 9.534
Vocabulary	11.5	2.5		14.5	2.0	1,3	13.0	2.6	1	**14,475
Arithmetic	11.9	2.4		13.4	2.2	1,3	12.9	2.4	1	* 3.974
Similarities	11.8	3.3		14.4	2.3	1,3	13.0	2.2	1	**11.853
Comprehension	10.6	2.3		13.7	2.4	1,3	12.0	2.5	1	**16.106
Sentences	9.1	2.7		11.3	2.8	1,3	10.1	2.9	1	** 5.699
Animal House	12.6	2.0	2	11.3	2.2		12.1	2.5	2	* 3.194
Picture Completion	13.4	2.8	2	12.0	2.4		13.0	2.4	2	* 3.402
Mazes	12.8	2.9	3,2	10.6	2.0		12.1	2.6	2	** 8.266
Geometric Design	13.9	3.1	2,3	10.2	1.8		12.1	2.5	2	**21.982
Block Design	14.2	2.5	2,3	11.5	2.5		13.1	2.5	2	**12.207
Peabody: IQ	109.6	18.0		119.6	14.7	1,3	113.0	12.3	1	** 5.720
Matrices: Raw Score	18.8	4.7	2,3	15.9	4.2		17.5	4.7	2	* 4.227
WRAT: Spelling grade	0.7	0.4	2,3	0.3	0.3		0.5	0.4	2	**10.483
Colour Naming	8.7	2.2		9.4	0.9	1	9.3	1.0	1	* 3.611
OBSERVER'S CHECKLIST:										
C: Manual Dexterity	5.8	1.3	2,3	4.8	1.2		5.4	1.5	2	** 5.205
Motor Coordination	9.7	2.2	2	8.9	1.4		9.8	2.0	2	* 4.025

[1]Results of Newman-Keuls: (see Table 40).

[2]Degrees of freedom are 2,197 for all comparisons.

Δ N-K = Newman-Keuls.
* p < .05.
** p < .01.

The French immersion sample performed very well on the measures of the Early Identification Assessment Battery. IQ scores were in the Bright Normal range. Ratings of behaviour by our examiners and by the four-year-old kindergarten teachers did not indicate specific areas of difficulty for this group as a whole. Expressive language skills tended to be well-developed with an average Mental Age score well above the 4-year-old level (Peabody Mental Age of 6-2). Expressive language skills were within the 5½ to 6 year range in terms of Information, and within the 5 to 5½ year range for Grammar (Renfrew). Other skill areas tested also resulted in competent performance levels. Thus, the French immersion sample was comprised of highly capable youngsters who responded well to the four-year-old kindergarten program and to the testing situation.

Teachers disagreed with parents' decisions to enrol their children in French immersion kindergarten for 25.5% of the French immersion sample. Biographical and background variables were not related to the teachers' advice against French immersion enrolment. Teachers tended to assign more below average ratings in ability, social maturation and motivation to children for whom they did not advise French immersion enrolment. Children about whom teachers were Undecided received the most below average ratings in motivation. Thus, teachers tended to advise against

French immersion for children who were less advanced in terms of ability and social maturation. For children of average to above average ability, teachers were cautious about advising French immersion if the child's level of social maturation or motivation was below average. These findings are consistent with the results reported earlier - teachers give high priority to a child's general development, especially maturity and emotional/social adjustment, when advising against French immersion enrolment.

The high representation of children for whom teachers predicted difficulty in school in the Disagreement group suggested that, in many cases, teachers were reluctant to recommend French immersion when they expected the child to experience difficulty in school.

There were many differences in performance levels on the Early Identification Assessment Battery for the groups formed on the basis of teachers' agreement with parents' French immersion enrolment decisions. Teachers agreed with parents' decisions for a group of children that stood out in terms of high scores on performance IQ measures; more advanced receptive vocabulary and ability to manipulate the speech signal; more competency as rated by teachers in terms of auditory comprehension, spoken language, and motor coordination; rated by our observers as superior in performance rate and manual dexterity; and having more advanced

readiness skills in the areas of identification of letters and numbers, auditory discrimination and problem-solving. The children for whom teachers did not advise French immersion enrolment performed more poorly on the above measures as well as on the Formboard task, expressive language skills, Colour Naming, and readiness skills for reading, spelling and arithmetic. This group also had more behaviour problems and less competency as rated by teachers and observers. Teachers were undecided about French immersion enrolment for children who did not present behaviour problems, who had well-developed expressive language skills, good listening comprehension, and good Formboard performance but, who had lower performance IQ scores, lower receptive language skills and ability to manipulate the speech signal, less advanced reading readiness skills, auditory discrimination and problem-solving abilities, and who had less competence in areas rated by teachers.

All of these factors along with particular performance patterns associated with variables such as sex and handedness will be considered carefully in the two year follow-up for their usefulness as predictors of success in a primary French immersion program.

To Conclude. The purpose of this first phase of the Early Identification Project was to investigate various descriptive variables and to collect extensive test data

for a sample of children whose progress in school will be followed for two years. Thus, little interpretation of the results can be made until the criterion measures are obtained in the spring of 1978 and 1979. The results of this phase do, however, indicate describable patterns of differences at many levels for children entering different kindergarten programs (French immersion vs. regular English program) and among children entering French immersion.

At one level, differences were found in terms of the characteristics of families of children entering different school programs. Children entering French immersion tended to come from higher SES more advantaged homes compared to children entering the English program. The French immersion enrolments were also treated differently by their parents in that they attended preschool more frequently and were read to at home more frequently.

Parental attitudes towards the French language also differed. Parents who intended to enrol their children in French immersion tended to express a greater interest in speaking or learning to speak French themselves compared to parents choosing the English program. Parents' reasons for choosing or not choosing French immersion appeared to be based upon the educational goals that they considered to be important, for example, functional bilingualism vs. a solid grounding in English language skills. The choices were

frequently made irrespective of their child's particular learning characteristics and seem to reflect more a "life-style decision".

It was found from the teacher ratings that consistent, although informal, criteria are used in either recommending or not recommending children for primary French immersion. As was discussed earlier, the criteria for advising against enrolment are different than the reasons usually cited in recommending French immersion enrolment.

Lastly, substantial group and individual differences were found on the early identification test battery. The demographic data, parent ratings, teacher ratings and early identification test information will all be assessed in the next two years for their effectiveness as predictors of success in the French immersion program.

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APPENDIX 1

Teacher's Ratings

TEACHER'S RATINGS Date _____

Name of Child _____
First Last

Teacher _____

School _____

Please rate the child on the following 3-point scales by placing a check mark above the appropriate category:

Ability:

below average	average	above average

Social Maturation:

below average	average	above average

Motivation:

below average	average	above average

Do you think that this child will have particular difficulty in school? Yes ☐ No ☐

If Yes, for what reason(s):

- Below average ability ☐
- Language difficulties ☐
- Immature ☐
- Cannot concentrate ☐
- Emotional or social adjustment problems ☐
- Not motivated ☐

Other (please list) _____

Do you think it advisable that this child be enrolled in French immersion kindergarten in September, 1977?

Yes ☐ No ☐

Please indicate reasons _____

APPENDIX 2

Biographical and Background Information Questionnaire

BIOGRAPHICAL AND BACKGROUND INFORMATION

This information will not be put into school files. It will be kept confidential by the research team from the Neuropsychology Laboratory, Royal Ottawa Hospital.

1. Name of child in junior kindergarten _____
   First Last

2. Age _____

3. Birthdate _____ Today's date _____
   Month Day Year Month Day Year

4. Sex Male ☐ Female ☐

5. School _____

6. Teacher _____

7. Which hand does your child tend to prefer for pencil work?
   Right ☐ Left ☐ No preference ☐

8. Handedness of parents for writing: Mother Right ☐ Left ☐ Father Right ☐ Left ☐

9. Are any of your other children left-handed?
   Yes ☐ No ☐ There are no other children ☐

10. Does your child have any special needs or handicaps? NO ☐
    Speech therapy ☐
    Hearing aid ☐
    Medications ☐ If so, which ones? _____
    Other (Please specify) _____

11. Did your child attend a Day Care Centre?
    Did not attend ☐
    Attended half day ☐ starting date, month____ year____
    ending date, month____ year____
    Attended full day ☐ starting date, month____ year____
    ending date, month____ year____
    Name and location of Centre(s) _____

12. Did your child attend a Nursery School?
    Did not attend ☐
    Attended half day ☐ starting date, month____ year____
    ending date, month____ year____
    Attended full day ☐ starting date, month____ year____
    ending date, month____ year____
    Name and location of Centre(s) _____

 Child's Name_____

3. Is your child presently attending a Nursery School or Day Care Centre as well as junior kindergarten?

Nursery School: Yes ☐ No ☐ Day Care Centre: Yes ☐ No ☐

14. What language is most often spoken in your home: Check one box only.

English ☐
French ☐
Italian ☐
German ☐
Other (Please specify)_____

15. What additional languages are spoken in your home?

None ☐ or, (specify)_____

16a. Do you speak French? Mother: Yes ☐ No ☐ Father: Yes ☐ No ☐

16b. If no, do you want to learn to speak French?

Mother: Yes ☐ No ☐ Father: Yes ☐ No ☐

17. Have you taken a French course other than in elementary school or in high school?

Mother: Yes ☐ Describe_____ No ☐ _____ Father: Yes ☐ Describe_____ No ☐ _____

18. Does your child hear French spoken in the home? Yes ☐ No ☐

19. Does your child hear French spoken in the neighbourhood? Yes ☐ No ☐

20a. Do you intend to enrol your child in French immersion kindergarten in September, 1977? Yes ☐ No ☐

20b. If no, what are your reasons for not enrolling your child in French immersion?_____

_____

_____

20c. If yes, what are your reasons for enrolling your child in French immersion?_____

_____

_____

Child's Name_____

21. Speaking generally, do you think that a child needs to have any special characteristics to do well in French immersion? Yes ☐ No ☐

Describe_____

_____

22a. Have you enrolled any of your other children in French immersion?

Yes ☐ No ☐

22b. If yes, how many?_____

Describe their program(s) (for example, grade 7 late immersion)_____

_____

_____

22c. Have any of your children had diffficulty in French immersion?

Yes ☐ No ☐ Not applicable ☐

Describe any difficulties_____

_____

23. What is father's occupation? Please describe your present job and the type of organization you work in. Examples: "Shoe salesman in a department store", "Stenographer, Level 2 in the Federal Government", "Owner-manager of a small Supermarket." (If you are not presently working outside of the home, please indicate present situation, e.g. student)_____

_____

_____

24. What is mother's occupation? Please describe your present job and the type of organization you work in. Examples: See Question #23. (If you are not presently employed outside of the home, please indicate present situation, e.g. housewife, student)_____

_____

_____

25. About how often is your child read to at home?

☐ ☐ ☐ ☐

occasionally; once or twice a week; several times a week; almost every night

page 4 Child's Name _____

26. About how many books (hard or soft cover) do you have in your home?

- 0-10 ☐
- 11-30 ☐
- 31-60 ☐
- 61-100 ☐
- 101-200 ☐
- 201-499 ☐
- 500 or more ☐

27. About how many of these are "children's books"?

☐ None ☐ Some ☐ Most ☐ Almost all

PLEASE NOTE THAT THIS IS NOT A REGISTRATION FORM. THE SCHOOL WILL CONTACT YOU ABOUT FRENCH IMMERSION SENIOR KINDERGARTEN REGISTRATION.

Form filled in by: Name _____

Address _____

_____

APPENDIX 3

Test Behaviour Observation Guide (Observer's Checklist)

TEST BEHAVIOUR OBSERVATION GUIDE *

A. Amount of Motor Activity
___1.Almost motionless
___3.Infrequent movement
___5.Average
___7.Frequent movement
___9.Extreme movement

B. Performance Rate
___1.Extremely slow
___3.Slow
___5.Average
___7.Rapid
___9.Extremely rapid

C. Manual Dexterity
___1.Extremely awkward
___3.Awkward
___5.Average
___7.Skillful
___9.Extremely skillful

D. Amount of Speech
___1.Mute(practically)
___3.Quiet
___5.Average
___7.Talkative
___9.Loquacious

E. Attention
___1.Almost impossible to get and hold
___3.Easily distracted
___5.Moderately attentive
___7.Relatively undisturbed by external stimuli
___9.Oblivious to external stimuli

F. Anxiety
___1.Extremely ill at ease
___3.Rather anxious,poorly poised
___5.Average social confidence
___7.Better than average social confidence
___9.Completely at ease

G. Self Confidence
___1.Painful uncertainty
___3.Inclined to distrust own ability
___5.Somewhat confident
___7.Rather self confident and assured
___9.Completely self confident

H. Effort Displayed
___1.Lackadaisical,indifferent
___3.Works perfunctorily
___5.Strives for success
___7.Works diligently
___9.Expends maximum effort

I. Cooperation Given to Examiner
___1.Negativistic,uncooperative
___3.Somewhat negativistic
___5.Generally good
___7.Cooperates readily
___9.Cooperates enthusiastically

J. Interest
___1.Completely uninterested
___3.Lack of interest shown
___5.Adequate interest shown
___7.Definitely interested
___9.Enthusiastic

* A. Atwell, R. Orpet and C. Meyers. Kindergarten Behavior Ratings as a Predictor of Academic Achievement. Journal of School Psychology, 1967, 6, 43-46.

APPENDIX 4

Behaviour Checklist

Behaviour Checklist

Listed below are descriptive terms of behaviour. Place a check mark in the column which best describes this child. ANSWER ALL ITEMS.

Observation	Degree of Activity			
	Not at all	Just a little	Pretty much	Very much
CLASSROOM BEHAVIOUR				
1. Constantly fidgeting				
2. Hums and makes other odd noises				
3. Demands must be met immediately-easily frustrated				
4. Coordination poor				
5. Restless or overactive				
6. Excitable, impulsive				
7. Inattentive, easily distracted				
8. Fails to finish things he starts-short attention span				
9. Overly sensitive				
10. Overly serious or sad				
11. Daydreams				
12. Sullen or sulky				
13. Cries often and easily				
14. Disturbs other children				
15. Quarrelsome				
16. Mood changes quickly and drastically				
17. Acts "smart"				
18. Destructive				
19. Steals				
20. Lies				
21. Temper outbursts, explosive and unpredictable behaviour				
GROUP PARTICIPATION				
22. Isolates himself from other children				
23. Appears to be unaccepted by group				
24. Appears to be easily led				
25. No sense of fair play				
26. Appears to lack leadership				
27. Does not get along with opposite sex				
28. Does not get along with same sex				
29. Teases other children or interferes with their activities				
ATTITUDE TOWARD AUTHORITY				
30. Submissive				
31. Defiant				
32. Impudent				
33. Shy				
34. Fearful				
35. Excessive demands for teacher's attention				
36. Stubborn				
37. Overly anxious to please				
38. Uncooperative				
39. Attendance problem				

How would you rate this child's behaviour compared to other children the same age?

much worse ☐ worse ☐ about the same ☐ better ☐ much better ☐

Signature _____ Title _____ Date Signed _____

TRITES, OTTAWA

APPENDIX 5

MEANS AND STANDARD DEVIATIONS OBTAINED BY THE SAMPLE OF 200 CHILDREN TO BE ENROLLED IN FRENCH IMMERSION ON THE EARLY IDENTIFICATION ASSESSMENT BATTERY

VARIABLES		$\bar{X}$	SD
AGE		4.9	0.3
WPPSI:	VIQ	118.3	12.4
	PIQ	115.8	12.0
	FSIQ	118.9	11.9
	VWS	64.8	9.9
	PWS	61.5	8.7
	FSWS	126.3	16.5
	Inf.	13.5	2.8
	Voc.	13.1	2.6
	Arith.	12.8	2.4
	Sim.	13.1	2.6
	Comp.	12.1	2.6
	Sent.	10.2	2.9
	Animal H.	12.0	2.4
	Picture Comp.	12.9	2.5
	Maze	11.9	2.6
	Geo. Des.	12.0	2.7
	Block Des.	12.9	2.7
PEABODY:	MA	6.2	1.3
	IQ	114.0	14.3
MATRICES	RAW	17.3	4.6
	SCALE	79.7	21.9
WRAT:	Grade: Rdg	1.05	0.4
	Spell.	0.51	0.4
	Arith.	0.80	0.4
Age 5.0+			
	Percentile: Rdg	75.5	14.5
	Spell.	46.3	22.6
	Arith.	62.3	21.9
DOMINANCE:	Right	6.2	21.9
	Left	0.8	1.8
FORM BOARD:	Right hand time	98.7	0.9
	Right hand blocks	3.0	0.3
	Left hand time	98.98	0.8
	Left hand blocks	3.0	0.2
	Both times	99.3	0.6
	Both blocks	3.0	0.1
	Total time	96.9	1.8
	Total blocks	8.8	0.9

VARIABLES	$\bar{X}$	SD
Dominant hand time	98.7	0.8
Dominant hand blocks	3.0	0.2
Nondominant hand time	99.0	0.8
Nondominant hand blocks	3.0	0.1
Time per block: Right	32.9	5.6
Left	32.7	3.3
Both	33.3	4.9
TOTal	11.3	3.2
Dominant	32.5	4.2
Nondominant	33.1	5.0
PICTURE NAMING: Time	129.1 (sec)	30.2
Errors	8.7	3.7
COLOUR NAMING: #CORRECT	9.2	1.3
WORD SEGMENTATION:		
TOTAL SEGMENTED	13.3	4.7
PARTIAL SEGMENTED	6.6	2.4
TOTAL SYLLABLES	9.2	3.9
PARTIAL SYLLABLES	4.0	2.1
OBSERVER'S CHECKLIST:		
A - Am't of Motor Activity	5.0	1.8
B - Performance Rate	5.2	1.5
C - Manual Dexterity	5.3	1.4
D - Amount of Speech	5.5	1.7
E - Attention	5.1	1.7
F - Anxiety	5.4	1.3
G - Self Confidence	5.3	1.6
H - Effort Displayed	5.1	1.5
I - Cooperation Given	5.5	1.5
J - Interest	5.1	1.3
RENFREW: Information	25.0	3.4
Grammar	27.2	4.4
BEHAVIOUR CHECKLIST (teacher)		
Conduct Problem	9.9	15.4
Inattentive - Passive	18.8	18.6
Tension-Anxiety	17.7	17.7
Hyperactivity	21.1	24.6
TOTAL	15.4	14.4
PUPIL RATING SCALE (teacher)		
Auditory Comprehension	13.1	3.0
Spoken Language	16.0	3.1
Orientation	13.1	5.4
Motor Coordination	9.6	2.0

VARIABLES	$\bar{X}$	SE
Pers-Soc. Behaviour	25.1	5.0
Verbal	29.2	5.6
NUMBER	47.4	7.8
TOTAL	76.3	13.0
CIRCUS:		
#2 HOW MUCH & HOW MANY a	9.4	2.4
b	12.0	2.0
c	9.4	2.3
Total (40)	30.7	5.4
#5 FINDING LETTERS & #s a	8.2	1.5
b	5.1	1.3
c	3.6	1.0
Total (20)	16.9	3.2
#7 HOW WORDS SOUND Total (44)	39.7	3.1
#9 LISTEN TO THE STORY a	10.6	2.4
b	6.5	1.7
Total (25)	17.2	3.4
#13 THINK IT THROUGH a	9.6	2.3
b	6.9	1.7
Total (32)	20.6	4.6

APPENDIX 6: INTERCORRELATIONS AMONG VARIABLES OF THE EARLY IDENTIFICATION ASSESSMENT BATTERY

	AGE	VIQ	PIQ	FSIQ	PEABMA	PEABIQ	MATRS	MATSS	WRAR	WRAS	WRAA	WRAAP	WRASP	WRAAP	DOMR	DOML	FRHT	FRHB	FLHT	FLHB	FBT	FBB	FTOTT	FTOTB	FDOMT	FDOMB	FNONT	FNONB
AGE																												
VIQ	-.07																											
PIQ	-.08	.55																										
FSIQ	-.08	.89	.87																									
PEABMA	.25	.55	.35	.51																								
PEABIQ	-.00	.59	.35	.54	.93																							
MATRS	.29	.35	.54	.50	.36	.26																						
MATSS	.28	.23	.38	.34	.29	.20	.82																					
WRAP	.15	.41	.45	.48	.26	.25	.21	.09																				
WRAS	.34	.33	.57	.51	.23	.14	.46	.33	.43																			
WRAA	.29	.57	.53	.63	.39	.34	.41	.29	.57	.49																		
WRAAP	.17	.45	.44	.50	.23	.24	.27	.13	.95	.23	.52																	
WRASP	.19	.31	.57	.49	.02	.02	.47	.37	.26	.997	.44	.23																
WRAAP	0.13	.62	.58	.68	.33	.32	.27	.16	.52	.44	.98	.54	.44															
DOMR	.01	.06	.12	.09	.06	.07	.09	.02	.17	.04	.11	.21	.09	.05														
DOML	-.00	-.06	-.12	-.09	-.06	-.06	-.09	-.03	-.17	-.03	-.10	-.21	-.09	-.05	-1.00													
FRHT	-.20	-.15	-.14	-.16	-.07	-.04	-.19	-.13	-.07	-.17	-.21	-.06	-.07	-.10	-.01	.01												
FRHB	.08	.09	.10	.11	.07	.05	.13	.20	.06	.15	.10	.04	.19	.13	-.02	.02	-.48											
FLHT	-.33	-.11	-.19	-.17	-.14	-.02	-.29	-.19	-.14	-.27	-.24	-.04	-.13	-.12	-.04	.04	.44	-.34										
FLHB	.06	.16	.18	.19	.09	.06	.10	.10	.17	.09	.13	-	-	-	-.03	.03	-.04	-.01	-.36									
FBT	-.25	-.01	-.09	-.07	-.07	-.00	-.19	-.10	-.03	-.20	-.22	-.10	-.23	-.26	-.10	.11	.42	-.32	.52	.00								
FBB	.08	.07	.06	.08	.08	.05	.05	.02	.03	.10	.07	-	-	-	.01	-.01	-.30	.51	-.36	-.01	-.51							
FTOTT	-.32	-.13	-.19	-.18	-.12	-.03	-.28	-.19	-.11	-.26	-.29	-.08	-.17	-.19	-.06	.06	.81	-.49	.82	-.17	.77	-.47						
FTOTB	-.04	.06	.06	.07	.06	.07	.07	.03	.12	.06	-.04	-.07	-.05	-.18	.19	-.19	-.14	.34	-.16	.22	-.18	.29	-.20						
FDOMT	-.19	-.13	-.15	-.16	-.10	-.06	-.18	-.15	-.08	-.15	-.18	-.05	-.02	-.10	.03	-.03	.94	-.50	.48	-.04	.40	.31	.79	-.11				
FDOMB	0.10	.04	.06	.06	.03	-.00	.11	.18	.08	.10	.07	.04	.13	.16	-.03	.03	-.38	.78	-.18	-.00	-.07	-.00	-.28	.22	-.39			
FNONT	-.34	-.12	-.19	-.17	-.11	-.01	-.29	-.18	-.14	-.28	-.27	-.07	-.21	-.12	-.08	.08	.51	-.33	.93	-.34	.54	-.34	.83	-.19	.43	-.17		
FNONB	.08	.07	.06	.08	.08	.05	.05	.02	-.03	.10	.07	-	-	-	.01	-.01	-.30	.51	-.36	-.01	-.51	1.0	-.47	.29	-.31	-.00	-.34	
PICTIME	-.31	-.29	-.29	-.32	-.24	-.13	-.33	-.32	-.23	-.31	-.34	-.33	-.28	-.33	.07	.07	.07	-.06	.21	-.17	.13	-.12	.17	-.08	.07	-.05	.21	-.12
PICERR	-.23	-.44	-.39	-.48	-.39	-.35	-.33	-.32	-.39	-.34	-.39	-.48	-.28	-.30	-.17	.16	.00	.06	.06	-.25	-.00	.00	.03	-.02	.01	.05	.05	.00
COLCOR	.15	.38	.21	.34	.25	.23	.19	.13	.31	.26	.36	.63	.31	.47	.24	-.24	-.06	.08	-.13	.01	-.11	.07	-.13	.03	-.05	.03	-.14	.07
SECTOT	.22	.31	.26	.32	.18	.14	.31	.27	.31	.29	.37	.23	.20	.31	.13	-.14	.00	-.04	-.16	.14	-.11	-.01	-.10	.05	.04	-.03	-.19	-.01
SEGPART	.22	.29	.25	.31	.17	.13	.29	.24	.29	.26	.36	.21	.14	.30	.11	-.12	-.02	-.03	-.17	.14	-.14	.09	-.12	.04	.03	-.04	-.21	.02
SYLTOT	.23	.20	.15	.20	.08	.01	.27	.22	.22	.25	.27	.21	.05	.13	.07	-.08	.03	-.05	-.17	.13	-.10	.01	-.09	.08	.07	-.05	-.21	.01
SYLPART	.22	.16	.19	.20	.10	.01	.27	.18	.21	.22	.30	.24	-.03	.19	.07	-.08	.01	-.02	-.16	.10	-.13	.07	-.10	.13	.05	-.02	-.19	.07
OBSA	-.04	-.12	-.18	-.17	-.03	.02	-.06	.01	-.04	-.14	-.12	-.11	-.17	-.29	.02	-.03	.01	-.08	.04	-.12	.01	-.04	.02	-.07	-.00	-.07	.05	-.04
OBSB	.24	.28	.36	.36	.27	.21	.35	.29	.18	.32	.25	.42	.52	.32	.05	-.05	-.11	.09	-.16	.10	-.22	.20	-.20	.08	-.07	.04	-.19	.20
OBSC	.24	.15	.35	.28	.07	-.01	.34	.31	.31	.41	.35	.41	.43	.45	.10	-.11	-.16	.18	-.21	.12	-.25	.12	-.25	-.15	-.14	.15	-.23	.12
OBSD	.06	.21	.05	.14	.13	.13	.08	.04	.10	.10	.12	.22	.12	.16	-.05	.05	-.00	.02	.02	-.02	-.07	.15	-.01	-.05	.04	-.06	-.02	.15
OBSE	.18	.30	.31	.35	.21	.19	.30	.24	.21	.26	.33	.30	.26	.38	.06	-.06	-.08	.07	-.13	.13	-.13	.04	-.14	.10	-.07	.07	-.13	.04
OBSF	.13	.27	.29	.32	.25	.11	.30	.13	.25	.34	.32	.23	.35	.34	.05	-.05	-.10	.07	-.10	.02	-.17	.13	-.15	.00	-.04	.05	-.16	.13
OBSG	.13	.25	.27	.30	.18	.17	.23	.13	.20	.22	.29	.32	.37	.40	-.01	.00	-.02	.09	-.02	.06	-.13	.15	-.07	.10	.02	.04	-.06	.15
OBSH	.24	.24	.35	.34	.18	.12	.37	.32	.22	.33	.37	.23	.31	.38	.00	.00	.07	.03	-.08	.10	-.12	.10	-.05	.03	.06	-.01	-.07	.10
OBSI	.21	.19	.24	.25	.15	12	.28	.17	.27	.28	.30	.23	.32	.33	.00	-.00	.00	.13	-.08	.07	-.15	.21	-.09	.13	.00	.04	-.08	.21
OBSJ	.19	.23	.30	.30	.10	.05	.36	.26	.17	.29	.31	.33	.39	.45	-.01	.01	-.03	.07	-.09	.12	-.20	.17	-.13	.18	-.03	.01	-.09	.17
PENINF	.17	.34	.17	.29	.29	.25	.18	.13	.20	.18	.27	.31	.15	.24	.06	-.06	-.07	.12	-.18	.08	-.07	-.04	-.13	.00	-.05	.14	-.19	-.04
PENGRAM	.07	.26	.13	.25	.14	.12	.04	.05	.10	.08	.22	.13	.09	.23	.04	-.04	-.13	.24	-.17	.02	-.11	.04	-.17	-.01	-.14	.23	-.16	.04
COMPROB	.07	-.16	-.20	-.20	-.05	-.09	-.03	.09	-.22	-.19	-.16	-.14	-.19	-.23	.03	-.04	.01	.05	.04	.01	-.05	.03	.01	.05	.02	.05	.03	.03
COMPASS	-.13	-.32	-.33	-.37	-.25	-.24	-.19	-.10	-.31	-.29	-.34	-.49	-.32	-.33	-.17	.16	.08	-.01	-.16	-.23	.07	-.01	.13	.01	.06	-.01	.18	-.01
CONARX	-.16	-.02	-.01	-.01	-.02	-.02	-.04	-.05	-.01	-.02	-.02	-.05	.08	.02	.04	-.05	.14	.00	.11	-.01	.10	-.09	.14	.08	.16	.06	.09	-.09
CONAPP	.03	-.27	-.27	-.30	-.16	-.19	-.02	.07	-.27	-.22	-.26	-.17	-.23	-.30	-.04	.03	.08	.03	.05	-.07	-.06	.05	.04	.06	.07	.03	.05	.05
CONTOT	-.01	-.25	-.26	-.29	-.13	-.16	-.06	.04	-.28	-.21	-.24	-.24	-.19	-.27	-.03	.02	.09	.04	.08	-.08	-.01	.01	.08	.07	.09	.05	.08	.01
ALPCOMP	.18	.49	.47	.54	.45	.42	.29	.12	.46	.44	.53	.56	.44	.51	.20	-.19	-.03	.07	-.12	.20	-.05	.03	-.08	.00	.01	.03	-.15	.03
SPQ LAN	.14	.52	.49	.57	.42	.38	.29	.16	.47	.45	.52	.52	.44	.58	.22	-.22	-.02	.06	-.12	.14	-.14	.07	-.11	.02	-.01	.03	-.13	.07
OR. EN	.07	.20	.25	.24	.16	.13	.16	.13	.17	.21	.17	.16	.14	.14	-.07	.07	-.04	.02	-.08	.06	-.07	.03	-.09	.04	-.03	.00	-.09	.03
MOTOL'Y	.13	.31	.44	.42	.18	.15	.26	.11	.31	.42	.32	.36	.50	.36	.22	-.22	-.10	.11	-.12	.09	-.17	.09	-.16	.11	-.06	.09	-.16	.09
PERSOC	.06	.31	.44	.42	.27	.27	.19	.03	.35	.38	.41	.35	.40	.41	.14	-.14	-.10	.00	-.06	.07	-.06	.03	-.10	-.02	-.06	-.03	-.10	.03
VERB	.17	.54	.49	.58	.46	.52	.30	.19	.48	.46	.55	.56	.46	.57	.23	-.22	-.02	.07	-.12	.17	-.10	.05	-.09	.01	.01	.04	-.14	.05
NONVERB	.11	.37	.52	.50	.31	.29	.27	.10	.41	.46	.47	.43	.48	.48	.19	-.18	-.09	.04	-.07	.10	-.09	.06	-.11	.03	-.07	-.00	-.09	.06
MIXTOT	.15	.47	.53	.56	.39	.36	.29	.14	.47	.49	.53	.53	.50	.56	.20	-.19	-.06	.05	-.09	.14	-.08	.06	-.10	.02	-.05	.01	-.11	.06
CIR2TOT	.34	.58	.47	.60	.52	.45	.42	.28	.59	.50	.63	.62	.40	.60	.15	-.14	-.06	.04	-.21	.13	-.07	-.04	-.14	.06	-.04	.05	-.22	-.04
CIR5TOT	.19	.40	.39	.45	.32	.30	.25	.16	.64	.31	.60	.70	.27	.54	.15	-.15	-.12	.11	-.12	.24	.01	-.05	-.10	.01	-.08	.14	-.16	-.05
CIR7TOT	.24	.55	.50	.60	.50	.45	.49	.39	.47	.45	.59	.53	.37	.62	.06	-.06	-.09	.08	-.24	.18	-.16	.02	-.20	.11	-.09	.08	-.24	.01
CIR9TOT	.28	.46	.38	.48	.53	.44	.42	.32	.37	.35	.44	.46	.28	.56	.05	-.05	-.06	-.01	-.17	.11	.16	-.06	-.16	-.09	-.06	.03	-.16	-.06
CIRLTOT	.30	.49	.44	.54	.51	.43	.41	.26	.41	.39	.52	.35	.35	.41	.11	-.11	-.07	.11	-.13	.11	-.13	.01	-.14	.04	-.11	.11	-.14	.03

	PIC-TIME	PIC-ERR	COL-COR	SEG-TOT	SEG-PART	SYL-TOT	SYL-PART	OBSA	OBSB	OBSC	OBSD	OBSE	OBSF	OBSG	OBSH	OBSI	OBSJ	REV-INF	PEN-GRAM	CON-PROD	CON-PASS	CON-ANX	CON-HYP	CON-TOT	ALT-COMP	STOK-LAN	ORIEN	MOTCOR	PERSOC	VERB	NON-VERB	MYK-TOT	CIR2-TOT	CIR5-TOT	CIR7-TOT	CIR9-TOT
PICTIME																																				
PICERR	.35																																			
COLCOR	-.18	-.26																																		
SEGTOT	-.24	-.29	.31																																	
SEGPART	-.24	-.24	.32	.97																																
SYLTOT	-.17	-.18	.28	.84	.81																															
SYLPART	-.20	-.16	.26	.72	.73	.89																														
OBSA	.07	-.01	.05	-.10	-.12	-.08	-.11																													
OBSB	-.29	-.25	.22	.20	.17	.17	.17	.08																												
OBSC	-.27	-.12	.25	.26	.23	.21	.23	-.16	.52																											
OBSD		-.16	.22	.15	.13	.14		.39	.36	.05																										
OBSE	-.24	-.20	.15	.28	.27	.23	.24	-.60	.24	.41	-.25																									
OBSF	-.19	-.24	.21	.24	.24	.21	.23	-.02	.47	.36	.45	.28																								
OBSG	-.22	-.20	.22	.16	.16	.15	.18	-.06	.50	.38	.35	.24	.71																							
OBSH	-.31	-.25	.14	.37	.37	.31	.32	-.42	.37	.49	-.02	.59	.37	.38																						
OBSI	-.35	-.23	.18	.27	.28	.27	.27	-.30	.35	.39	.14	.45	.53	.57	.59																					
OBSJ	-.30	-.24	.16	.25	.24	.27	.26	-.21	.49	.40	.18	.48	.57	.53	.66	.59																				
PENTOT	-.08	-.15	.28	.28	.26	.21	.14	.01	.08	.09	.08	.12	.09	.14	.04	.08	-.01																			
PENGRAM	.15	-.02	.18	.17	.17	.13	.09	-.03	.05	.04	.12	.04	.10	.08	-.01	.07	.04	.62																		
CONPROB	.16	.10	-.11	.00	-.01	.09	.07	.14	-.01	-.11	.07	-.20	-.04	-.08	-.22	-.16	-.16	-.08	-.02																	
CONPASS	.10	.30	-.32	-.14	-.14	-.09	-.09	.13	-.27	-.26	-.05	-.36	-.13	-.13	-.25	-.07	-.22	-.19	-.08	.46																
CONANX	-.07	.09	-.01	-.00	-.00	.04	.07	-.03	-.20	-.09	-.18	-.09	-.23	-.23	-.15	-.08	-.14	.07	.05	.04	.32															
CONHYP	.06	.16	-.17	-.06	-.06	.03	.04	.19	.02	-.04	.12	-.24	.00	.03	-.12	-.05	-.07	-.09	-.01	.79	.58	-.09														
CONTOT	.03	.20	-.18	-.04	-.04	.06	.06	.15	-.10	-.16	.06	-.29	-.09	-.11	-.24	-.11	-.18	-.07	-.00	.88	.72	.31	.84													
ALTCOMP	-.16	-.46	.28	.25	.24	.18	.19	-.10	.32	.33	.17	.33	.27	.25	.26	.15	.19	.30	.15	-.16	-.60	-.08	-.32	-.34												
STOKLAN	-.14	-.46	.29	.27	.27	.16	.17	-.14	.29	.30	.17	.30	.30	.24	.27	.15	.21	.25	.18	-.07	-.44	-.10	-.21	-.24	.81											
ORIEN	-.22	-.24	.10	.13	.13	.07	.14	.06	.22	.12	.12	.16	.17	.15	.17	.13	.14	.02	-.05	-.08	-.24	-.08	-.08	-.14	.27	.25										
MOTCOR	-.20	-.28	.23	.21	.23	.18	.20	-.02	.40	.38	.13	.18	.29	.26	.21	.17	.28	.11	-.05	-.11	-.39	-.10	-.15	-.22	.56	.58	.24								
PERSOC	-.11	-.32	.17	.11	.11	.06	.08	-.18	.22	.25	.05	.31	.21	.20	.28	.23	.24	.20	.04	-.60	-.65	-.10	-.69	-.70	.62	.49	.30	.45								
VERB	-.17	-.48	.29	.28	.27	.16	.19	-.11	.31	.32	.18	.32	.30	.26	.27	.15	.20	.30	.18	-.12	-.55	-.10	-.27	-.30	.94	.94	.27	.59	.58							
NONVERB	-.16	-.38	.20	.17	.17	.10	.15	-.13	.34	.34	.08	.31	.25	.26	.30	.26	.28	.21	.04	-.45	-.63	-.09	-.53	-.55	.75	.63	.39	.67	.92	.72						
MYKTOT	-.18	-.44	.25	.23	.23	.15	.19	-.14	.33	.33	.12	.32	.26	.30	.29	.22	.24	.28	.11	-.32	-.61	-.10	-.44	-.46	.88	.81	.36	.66	.82	.89	.93					
CIR2TOT	-.36	-.45	.45	.36	.35	.24	.20	-.05	.27	.32	.12	.32	.22	.23	.30	.30	.17	.42	.24	-.19	-.33	-.01	-.23	-.24	.54	.52	.23	.34	.38	.55	.44	.551				
CIR5TOT	-.22	-.36	.33	.24	.23	.18	.16	-.09	.18	.25	.07	.24	.12	.19	.28	.20	.17	.18	.07	-.22	-.41	-.02	-.32	-.32	.47	.39	.19	.23	.35	.45	.37	.42	.61			
CIR7TOT	-.33	-.43	.34	.36	.35	.31	.26	-.08	.35	.27	.20	.29	.28	.24	.39	.34	.32	.35	.28	-.15	-.31	-.06	-.14	-.18	.49	.50	.24	.31	.34	.51	.39	.46	.66	.48		
CIR9TOT	-.36	-.28	.36	.36	.36	.26	.27	-.09	.23	.23	.02	.34	.17	.20	.30	.25	.19	.36	.23	-.19	-.27	-.03	-.21	-.22	.34	.37	.16	.27	.26	.38	.31	.36	.62	.33	.77	
CIRLOUT	-.30	-.35	.27	.34	.33	.26	.27	-.07	.25	.21	.08	.29	.23	.16	.30	.22	.20	.38	.22	-.15	-.31	-.02	.25	.23	.45	.43	.09	.24	.36	.47	.37	.43	.60	.41	.59	.66

TEST NAMES AND ABBREVIATIONS

Variable Name	Computer Code
AGE	AGE
SEX	SEX
DOMINANCE	DOM
WPPSI: Verbal IQ	VIQ
Performance IQ	PIQ
Full Scale IQ	FSIQ
Information	INF
Vocabulary	VOC
Arithmetic	ARTH
Similarities	SIM
Comprehension	COMP
Sentences	SENT
Animal House	AH
Picture Completion	PC
Mazes	MAZ
Geometric Design	GD
Block Design	BD
PEABODY: Mental Age	PEABMA
IQ	PEABIQ
MATRICES: Raw Score	MATRS
Scale Score (norms: age 5½)	MATSS
WRAT: Reading grade score	WRAR
Spelling grade score	WRAS
Arithmetic grade score	WRAA
Reading percentile	WRARP
Spelling percentile	WRASP
Arithmetic percentile (for Ss age ≥ 5.0 years)	WRAAP
DOMINANCE DEMONSTRATIONS: # Right	DOMR
# Left	DOML
FORMBOARD: Right hand: time	FRHT
Right hand: # blocks	FRHB
Left hand: time	FLHT
Left hand: # blocks	FLHB
Both hands: time	FBT
Both hands: # blocks	FBB
Both time	FTOTT
Total # blocks	FTOTB
Dominant hand: time	FDOMT
Dominant hand: # blocks	FDOMB
Nondominant hand: time	FNONT
Nondominant hand: # blocks	FNONB
Time per block: Right hand	RTPB
Left hand	LTPB

Variable Name		Computer Code
	Both hands	BTPB
	Total	TOTPB
	Dominant hand	DOMTPB
	Nondominant hand	NONTPB
PICTURE NAMING:	Time	PICTIME
	# errors	PICERR
COLOUR NAMING:	# correct	COLCOR
WORD SEGMENTING:		
	TOTAL # words segmented in any way	SEGTOT
	PARTIAL # words segmented in any way	SEGPART
	TOTAL # words segmented - syllable boundaries	SYLTOT
	PARTIAL # words segmented - syllable boundaries	SYLPART
OBSERVER'S CHECKLIST		
	A - Amount of Motor Activity	OBSA
	B - Performance Rate	OBSB
	C - Manual Dexterity	OBSC
	D - Amount of Speech	OBSD
	E - Attention	OBSE
	F - Anxiety	OBSF
	G - Self-Confidence	OBSG
	H - Effort Displayed	OBSH
	I - Cooperation given to examiner	OBSI
	J - Interest	OBSJ
RENFREW ACTION PICTURE TEST		
	Information	RENINF
	Grammar	RENGRAM
BEHAVIOUR CHECKLIST (Teachers)		
	Conduct Problem	CONPROB
	Inattentive - Passive	CONPASS
	Tension - Anxiety	CONANX
	Hyperactivity	CONHYP
	Total	CONTOT
PUPIL RATING SCALE (Teachers)		
	Auditory Comprehension	AUDCOMP
	Spoken Language	SPOKLAN
	Orientation	ORIEN
	Motor Coordination	MOTCOR
	Personal - Social Behaviour	PERSOC
	Verbal Score	VERB
	Nonverbal Score	NONVERB
	Total Score	MYKTOT

Variable Name	Computer Code
# 2: How Much and How Many	CIR2TOT
# 5: Finding Letters and Numbers	CIR5TOT
# 7: How Words Sound	CIR7TOT
# 9: Listen to the Story	CIR9TOT
#13: Think it Through	CIR13TOT